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ORIGINAL ARTICLES.

THE MASSACHUSETTS LUNACY LAW.

Read in the Section of Medical Jurisprudence, at the Fortieth Annual Meeting of the American Medical Association, June 1889.

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The question of a revision of the lunacy laws of Massachusetts has excited much interest the past year, and may soon become the subject of legislative inquiry. Dr. Stephen Smith, ex-Lunacy Commissioner of New York, has published a "Report on the Commitment and Detention of the Insane," which recommends uniform legislation on these subjects.

Patients are now admitted at the Boston Lunatic Hospital in six different ways. The majority of them are regularly committed by the Judge of Probate on the certificate of two physicians. There is little to criticise in the law by which this is done, except the provision which forbids physicians connected with asylums from certifying. This is a reflection on their honesty not warranted by any experience in this country. The large number of private Asylums in England, kept by medical men for profit, rendered desirable a law that no physician should certify a patient into his own asylum. This law was transplanted to this country—where private asylums are rare—and changed so as to forbid any physician connected in any way as officer, or trustee, or commissioner, or member of a board of lunacy even, with any hospital for the insane, public or private, from certifying a private patient into any hospital for the insane. This is not only a gratuitous insult to the specialty, but a hardship to the friends of the insane. Superintendents of hospitals—especially in country districts—are the only physicians whose knowledge of insanity is of much value. Such an one's advice is naturally sought by the relative of the patient in obscure cases, and it is something of a shock to be told, after receiving his valuable opinion and advice, that his certificate is of no value. His opinion in court may settle questions of damages of large amount, or determine the disposition of large fortunes by will; the life or death of an insane criminal may depend on his judgment; but having advised so simple a thing as hospital treatment for some private patient, two strange physicians must be called in, at added cost, to reëxamine the person, before he can be sent to a hospital for treatment. Fortunately, the provision of law, that the judge may see the insane patient, is not mandatory. If it was, it would be impossible, or at least harmful, to many patients to carry it into effect in Suffolk county. Here 500 or 600 patients are committed annually by one judge, and he is necessarily obliged to give some formal reason for not seeing the patient. This provision is merely superfluous, as a judge could insist on seeing a patient without it.

The second form of admission is upon emergency papers. This method, though of general application, is in use only in Suffolk county, and at this hospital, no emergency cases being reported by the State hospitals. The emergency law was passed to allow excited and dangerous patients to be speedily admitted to hospitals for temporary detention, and to prevent the necessity of insane persons arrested by the police of Boston, on Sundays, holidays, and after business hours, when no judge can be found, being sent to the station-houses or city prison. This was an excellent object, and the law is absolutely necessary for the safety of the public and the good of the insane. Instead, however, of being simple and easy of application, more papers are required, more time is necessary, and the method is more complicated than that for a regular commitment. In an emergency, having an excited lunatic to dispose of, few physicians remember the law, or know where to look for it, and either make out faulty certificates, which cannot be received, or send the patient with his friends or by the police to the hospital without any papers. In a regular commitment, which many physicians have learned to understand, the two physicians sign the same certificate; while the emergency law requires them to sign separate ones, and also to add to the usual form the statement that the patient is sent as an emergency case, *i. e.*, that he is so insane that he cannot wait for the regular commitment process. We very seldom receive correct emergency certificates, except from the examining physicians to the Board of Directors.

This necessitates, when such a case arrives, the rejection of the faulty papers, and sending out into the city for two other physicians living nearest the hospital, who are strangers to the patient but able to certify properly. This puts the relatives to the expense of four physicians instead of two, and causes the prolonged detention of an excited patient in an out reception-room Humanity requires that these cases should be received, but we cannot admit them to the wards without the proper certificates. Another absurdity of this law is the requiring of a bond of $100.00 to be given by somebody representing the patient, to remove him within five days unless regularly committed. No superintendent would dare to keep the patient beyond the legal limit; as he would expose himself at once to a suit for illegal detention and heavy damages. In the great majority of cases, however, the bond is a mere form which might be dispensed with. It is either signed by some poor and irresponsible friend of the patient, or by some policeman, or, more often still, by one of the certifying physicians. Another absurd provision is that requiring that the mayor or one of the selectmen should sign the application. In Boston, where most of these cases occur, the law is evaded in the following manner (if it were literally enforced very few emergency cases would be received. It would be as easy to find the judge as to find the mayor or his representative): The Mayor of Boston dele gates his authority both under the emergency law and the law for regular commitment, to the Board of Directors for Public Institutions. In the latter case the clerk of the Board signs for the Mayor an acknowledgement that he has been notified and puts it on file. In the former case he signs in advance blank applications for the admission of emergency cases, and gives them in charge to the Superintendent of this hospital and the examining physicians of the Board. Suppose the police or the relatives of an excited lunatic had to find this official at short notice, by night, or on a holiday, or on Sunday, as usually occurs, how often would the delay prove dangerous? These deviations from a strict interpretation of the laws relating to the commitment of the insane are at present humane and necessary, and I fully approve them. I think, however, that the red tape and complicated requirements of the emergency law stand in the way of its general usefulness, especially in the small cities and towns. Before the physicians of a country village could have found and read the law and made proper certificates, and invented a form of bond, and found a selectman who knew how to make an application, the lunatic might have murdered his family or burned the town. Practically, the law is not used in the country or outside of Boston. The violent lunatic is seized by the local police or town constable, handcuffed, and put into the lock-up to await the slow action of the regular process of commitment before a judge of probate in some distant town, perhaps. The whole procedure in emergency cases should be simplified so as to consist merely in the sworn certificate of two physicians as to the dangerous condition of the lunatic.

The admission of voluntary patients is the third method to be considered. A recent law allows the Superintendent to receive as a "boarder" any person who makes written application to that effect "whose mental condition is not such as to render it legal to grant a certificate of insanity." This law, strictly construed, would prevent the admission of any insane person, or dipsomaniac, as a voluntary patient. This would only leave a certain class of nervous patients, who were apprehensive of becoming insane, and were desirous of early treatment as a means of prevention, to be admitted under this law. Applications of this kind are very rare at the public hospitals. The McLean Asylum, at Somerville, has almost a monopoly of this class of patients, and I am afraid many of the cases admitted there and elsewhere do not come within the terms of the law. A few inebriates have been admitted to the Boston Lunatic Hospital as voluntary patients, by order of the Board and otherwise, and some of them have remained a long time under treatment, and have apparently recovered.

Some patients, no doubt, are made willing to come voluntarily by the threat of commitment held over them by their relatives, and the knowledge that they can go on three days' notice by another written application for discharge. It is certain that some insane persons are admitted as voluntary patients; also, that many become insane and are committed before the three days' grace are over. It seems a breach of confidence on the part of the superintendent to have a voluntary patient committed, and yet it often becomes necessary. The opinion of Dr. Cowles, of the McLean Asylum, would be of especial value with reference to this law. It seems to me, however, that I should change it, so as to allow any person—sane or insane, or a dipsomaniac—admission on his voluntary application; but with the definite understanding that he was liable to be committed if his case proved serious or intractable. The term "boarder" is somewhat obscure. Does it mean a private patient, or simply an inmate, without regard to the payment of board? If the latter, may not a desire to be comfortably cared for at public expense induce some to apply? The law depends largely on the discretion of the superintendent for its successful application.

The fourth form of admission is under the Habitual Drunkard law.[1]

[1] Since this paper was read a law has been passed providing a special hospital for inebriates.

This law, as it stands, is defective, and liable to abuse in several ways. In the first place, inebriates should be committed to some special institution, and not to lunatic hospitals. They not only take up the room needed by the insane, but, after the first few days, they are practically sane, and find themselves surrounded by the depressing influences of an insane hospital, and subjected to restraints and regulations primarily adapted to the insane. To be sure they are better off than when at large, exposed to temptations to drink, and much may be done for them in the way of kind treatment and moral management. But they are out of place, and they often feel it, and show it; while many are considerate and give little trouble, sometimes they interfere sadly with the discipline and interrupt the harmony of an asylum ward. They may refuse to associate with the insane or claim privileges which cannot be granted their insane neighbors and which, if granted them, cause more or less jealousy and hard feeling.

In the second place, they should be committed for a definite time, either for one, two or three years. This is necessary, because a long course of hygienic treatment is required to restore the enfeebled brain to its normal state of health and vigor, and to allow the weakened will to regain ascendancy over the appetite for stimulants. The inebriate's whole constitution needs reconstructing, and this process must not be interrupted by occasional drinking. It is better, also, for the inebriate to know definitely what he is to look forward to, so as to ensure contentment and repose of mind as far as possible. The patient should expend his energies in healthful employment, and in the attempt at recovery, and not in efforts for his own release. The present law subjects the superintendent to constant importunities for discharge on the part of the inebriate and his friends. Plausible reasons are advanced, ingenious schemes are made use of, and all sorts of influence brought to bear for a patient's discharge, when one would have supposed that removal from home for a year would have been a great relief to the inebriate's family and friends.

I have endeavored to conform to the rule here that no habitual drunkard shall be discharged under a year's detention, as that was the shortest period of commitment ever proposed in the discussions in Legislature and Parliament. I failed in applying this rule in almost the first case committed. After a two months' residence, this person was allowed to go home on trial, at the personal request of the judge who committed him, to avoid a long and unprofitable rehearing of the whole case on its merits. Fortunately, this patient has so far justified the confidence reposed in him, and has been discharged.

In the third place, the law should allow compulsory labor to be performed by inebriates, within certain limits, and at the discretion of the superintendent, partly to reimburse the Commonwealth for their support, but more especially as a hygienic measure. Idleness in the wards of a lunatic hospital is as far as possible from the best treatment of inebriety. Varied employment, in the open air when possible, for a few hours daily, with similar periods for recreation out of doors, is the essential feature of such treatment. The majority of insane persons are unable to work, while most inebriates are. It would be wrong to compel an insane person to work, while inebriates might be induced to work, by promise of reward, deprivation of privileges, and other forms of moral suasion. The opportunities for work in most hospitals are already too limited, and lack in variety, while in an inebriate asylum there would be no objection to the use of tools of any kind.

The law is also liable to abuse in several ways. In the first place, physicians are not unlikely to apply the law to some inebriates who are not of unsound mind. The use of both terms, "dipsomaniac" and "habitual drunkard," tends to create confusion and ambiguity in certifying. Dipsomania, either inherited or acquired, would be a proper cause of commitment. Persons affected with an inherited tendency to that form of impulsive insanity, characterized by an insane desire to drink, are dipsomaniacs by inheritance. These cases are rare; they have a defective or degenerated cerebral organization which leads them to impulsive acts through a weakness of the will, and excessive energy of the animal instincts. In another more numerous class the brain has been so damaged by inebriety or other causes, such as ill health, blows on the head, sun-stroke, etc., as to prevent all possibility of self-control in relation to drink. These are cases of acquired dipsomania. Persons of sound mind who drink habitually from choice are not proper subjects for commitment. They are vicious drunkards, and should be punished rather than treated. These are nice distinctions it is true; but they are real ones, and it is therefore important that physicians should look carefully for the element of unsoundness of mind in the cases they are called on to examine.

There is also some danger that judges may not sufficiently regard the clause which requires that satisfactory evidence shall be furnished that the inebriate is not a person of bad repute or of bad character apart from his habits of inebriety. Such evidence is not likely to be presented unless demanded and the facts carefully elicited from reluctant witnesses. It would, indeed, be unfortunate if our insane hospitals should be used as convenient retreats for vicious and disreputable drunkards to recuperate in.

For many years there have been attempts on the part of superintendents of insane hospitals to secure the passage of a law allowing the commit-

ment of dipsomaniacs to some special institution for their custody and treatment. In England this movement resulted, after many years of discussion in Parliament, in the passage of an Habitual Drunkard's Bill, whereby such persons may voluntarily seclude themselves in special institutions for definite periods. The writer has often advocated before legislative committees and the Board of Health, Lunacy and Charity, and in a paper on "Insane Drunkards" read before the Massachusetts Medical Society in 1879, legalizing the commitment of inebriates to special institutions for long periods of from one to three years. He also demonstrated, in defending an action for damages for improper certification of an inebriate, at considerable trouble and expense, that, in the opinion of the Supreme Court of Massachusetts, there is such a disease as dipsomania, and that, in the absence of special institutions, such cases might be committed to hospitals for the insane. Soon after this decision, if not in consequence of it, renewed efforts were made by the Board of Health, Lunacy and Charity to secure the passage of a law on this subject, and in 1885 the following law, not wholly in accord with their recommendation, was passed:

An Act Concerning Hospital Treatment for Certain Persons Subject to Dipsomania or Habitual Drunkenness.

Be it enacted, etc., as follows:

SECTION 1. Whoever is given to or subject to dipsomania, or habitual drunkenness, whether in public or in private, may be committed to one of the State lunatic hospitals; *provided, however*, that no such person shall be so committed until satisfactory evidence is furnished to the judge before whom the proceedings for commitment are had that such person is not of bad repute or of bad character, apart from his habits of inebriety.

SECT. 2. The provisions of chapter eighty-seven of the Public Statute, and of acts amendatory to such chapter, relative to the commitment of an insane person to a lunatic hospital, shall be applicable to, and shall govern the commitment of, any person under this act except that in all proceedings relative to the commitment of any such person it shall be specifically alleged that he is subject to dipsomania, instead of alleging that he is insane.

SECT. 3. All the laws relative to persons committed to lunatic hospitals on the ground of insanity shall apply to persons committed thereto under the provisions of this act; *provided*, that no person so committed shall be discharged therefrom unless it appears probable that he will not continue to be subject to dipsomania or habitual drunkenness, or that his confinement therein is not longer necessary for the safety of the public or for his own welfare.

SECT. 4. This act shall take effect upon its passage.

Approved June 18, 1885.

It will be seen this act does not include this hospital in its provisions; but it has been construed as applying to it by the committing magistrate. The provision allowing commitment to lunatic hospitals may have been a compromise on the part of the legislature to avoid the expense of establishing a special institution for inebriates. It certainly was not what superintendents had asked for, but what they had always earnestly protested against. They had hoped for a law to relieve them of such inebriates as did from time to time get committed to their hospitals on the claim that they were insane; and a law was passed legalizing the commitment to insane hospitals of habitual drunkards without any inquiry as to their sanity. This law was passed in the face of the fact that all the hospitals were full to overflowing with cases of ordinary insanity, so that hundreds were compelled to sleep in the attics and on corridor floors. Under this pressure one superintendent expressed himself as having degenerated into a big policeman, spending his time in trying to keep order and maintain discipline in a crowd of lunatics and inebriates, instead of devoting his time to his proper work of treating insanity.

The fifth method is by transfer from State hospitals for the insane. This has never been made use of in the history of the hospital until the past year. In fact, it was by Chapter 319 of the Acts of 1886 that it was first authorized. This provides that the order of commitment of an insane person, whose friends are unable to support him, holds good until his recovery, and he may be transferred, by the State or city authorities, to any "hospital, asylum, private dwelling, or other place," at their discretion, provided he has had a trial of hospital treatment, and has been insane twelve months. After this initiation, he may be subject for a lifetime, if he does not recover, to the control of the State, civic, or town authorities. He may be transferred from one asylum to another, regardless of the convenience or contiguity of his friends and relations. Boston patients, for instance may be, and are, sent to Northampton. He may be boarded out in some remote village, possibly to be overworked, underfed, and seldom visited by friends or inspectors. Ignorant and economical selectmen may without medical advice seclude him in some remote poor-house, or they may board him or farm him out on some distant farm. This control only ends with the life of the patient, and he may be still held by his first commitment paper years after the physicians who examined him and the judge who commited him are dead and forgotten. This is called "administrative commitment." If exercised by medical men, experienced in dealing with the insane, and humane men, remembering that the love of home and friends is not always extinguished in the insane at the end of twelve months, and that many recoveries occur after one year, and even after five years of insanity, it may not work much harm to the insane. If the selection of the boarded-out insane is very carefully made, and their inspection very thoroughly conducted by competent physicians, having experience in the treatment of insanity, not much harm may be done, and some money may be saved to the State.

I think, however, the law is rather in the interests of economy and administrative convenience than for the best good of the insane. An insane person's family and friends are the natural inspectors and supervisors of his treatment and condition. I see no reason why, because an insane person is poor and may never fully recover, he should be moved all over the State, like a pawn on a chessboard, because this or that hospital is too full, or because he can be boarded out at $2 a week, while it costs $4 at the State hospitals. Since writing the above I have read Dr. Park's last report, from which I extract the following: "Some forty chronic and incurable cases were transferred to the Tewksbury Almshouse and the Westboro' Hospital, and their places supplied by an equal number of similar cases from Danvers. Apart from the temporary pleasure of the day's outing, including the ride on the cars, which was afforded them by this trip, no improvement in their mental condition can be expected as a result of their change of residence."

The sixth method of admission is by the return of excited patients from the Retreat at Dorchester. We have received ten patients in this way—under a general order of the Board to take all patients sent to us by the superintendent of that institution. Nine of them were originally sent there under a similar order. The other case was that of a man who has lived in four different hospitals in the last two years on one commitment. I do not know whether the patients sent from this hospital to the Retreat were sent under the law of 1886 or not; if so, the original papers did not accompany them. There is a law which is open to criticism, but we have been exempted from its operation. It directs that all those insane committed from Suffolk County unable to pay board shall be sent in turn, and in equal numbers to each of the State hospitals and this hospital. At first commitments were made for six weeks to each of the above hospitals, including the Homœopathic Hospital, without regard to the question whether patients desired homœopathic treatment or not. This hospital was early exempted from the operation of this law by the Board of Lunacy and Charity as a single week's commitments would have overwhelmed us on the female side. For several months all patients have been sent to Westboro'. According to the terms of the law, and in practice, only homœopathists and paying patients are allowed to select their own hospital.

A NEW SWISS PHARMACOPŒIA.—A new Swiss Pharmacopœia is shortly to be published. A request has been sent, by the collaborators, to Swiss medical societies and practitioners, requesting suggestions as to the introduction of new remedies and the retention of old ones.

THE PATHOLOGY AND TREATMENT OF CHRONIC SCIATICA.

Read before the Section of Surgery and Anatomy, at the Fortieth Annual Meeting of the American Medical Association, at Newport, June, 1889.

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Pathology.—Chronic sciatica may be the result of the acute form, or may be chronic from the beginning and run a tedious, painful and protracted course—at times almost abating, to be again renewed with increased paroxysms of pain. It has been truly said of sciatica that "it is an unwelcome guest who returns when least expected." The points of greatest sensitiveness are the buttock, sacro-sciatic notch, post trochanteric line, head of fibula, outside of leg, maleolus, sole, outside and two-thirds of the dorsum of the foot.

There are two factors in the pathology of chronic sciatica, viz: one a neuralgia or neurosis, the other a neuritis or perineuritis, inflammation of the sheath and surroundings of the nerve trunk. The disease may be located in the peripheral or central portion of the nerve. Chronic sciatica may be the manifestations of a neurosis—functional derangement of a nerve centre found in neuropathic constitutions. There may be anæmia or hyperæmia of the nerve and sheath, or nerve centres, pressure of tumors, or a reflex irritation of the nerves from genito-urinary or rectal diseases as a urethal stricture, displaced uterus, or ovary, fissure, hæmorrhoids, pressure of the nerve by a contracting cicatrix, deposit of callus on the nerve or some of its branches, the rheumatic or gouty diathesis, spinal concussion, syphilis, malaria, pregnancy, over-lactation, alcoholism, venereal excesses, lead and mercurial poisoning, excessive fatigue, diseases of the vertebra, or pelvic bones, a damp or cold climate.

In the consideration of chronic sciatica, this question presents itself, viz: Is the pathological condition a neuralgia or a neuritis? In neuralgia of the sciatic nerve on ante- and post-mortem inspection, there have been no pathological lesions found in the nerve or its coverings; if the above causes were the only factors concerned in the pathology of chronic sciatica a removal of them *a priori* would cure the disease, but such is not the case; for though the cause may be removed the disease may still exist in all its obstinacy, and another factor must be considered, viz: a neuritis, or a peri-neuritis which makes chronic sciatica so rebellious to treatment. In chronic sciatic neuritis the pathological state is rather in the sheath of the nerve than in changes of the nerve fibres; the nerve fibres may undergo some pathological change in this condition, but what is at present known is, that the neurillema or connective tissue sheath of the nerve, including its minute prolongations between and around separ

ate bundles of nerve fibrils, becomes much more hyperæmic than natural, and that on microscopic examination there is to be found in addition to the increased vascularity, a multiplication of new tissue elements and the presence of migratory leucocytes. These changes may cause considerable swelling of the nerve sheath and of its prolongations, and thus may produce irritation, or more or less compression of the nerve tubules, according to the amount of new tissue elements which accumulate in, or are produced within the sheath. In neuritis the nerve often appears to the eye normal, and the characteristic changes are only revealed by the microscope.

The microscopic changes in neuritis may extend to all the constituents of the nerve and present the ordinary picture of acute inflammation, hyperæmia, exudation, accumulation of white corpuscles in the tissue, and even the formation of pus. The nerve fibres, exhibiting in various degrees, the destruction of the white substance of Schwann and the axis cylinder, or, as in chronic neuritis, the alterations may consist in the more gradual proliferation of the peri- and endoneurium, which contracting renders the nerve dense and hard, and destroys the nerve fibres by compression. When the perineurium has been the principal seat of the inflammation in chronic neuritis, the trunk of the nerve becomes hard and thickened, from proliferation of the connective tissue. Sclerosis of the nerve.

In chronic neuritis as in the acute, the perineurium may be exclusively affected, the fibres remaining normal (Crushman and Eisinlohr). The nerve fibres themselves may be the primary and almost exclusive seat of neuritis, exhibiting more or less complete destruction of all their constituent parts, excepting the sheath of Schwann without hyperæmia, with little or no alteration of the interestitial tissues. Sometimes the fibres are affected at intervals, the degeneration occupying a segment between two of Ranvier's nodes, leaving the fibres above and below normal. (Neurite segmentaire periaxle). Gambault. "All of these lesions of the nerve fibres may be recovered from by a process of regeneration, the fibres showing a remarkable tendency to recover their normal structure and function. The nerve does not always present the appearance of a continuous inflammation, but the evidence of neuritis may be seen at points along its course which are separated by sound tissue. These points of predilection are usually exposed positions of the nerve or near joints."

"In chronic neuritis, the morbid anatomy consists of an increased vascularity of the affected nerve, sometimes of a varicose state of the blood-vessels, of a thickening and induration of the neurilemma in consequence of coagulate exudations. In variable degrees the nerve assumes somewhat of a slate color, loses its characteristic opacity, and when examined under the microscope the nerve fibres are found to have fallen to a greater or less extent into a state of disintegration. The inflammation may attack the sheath of the nerve chiefly, and contract adhesions to neighboring tissues, the nerve itself remaining movable, although compressed. In other cases the nerve as well as the sheath is the seat of inflammation. In the growth of new connective tissue the proper nerve elements are compressed, and consequently atrophy and disappear, nothing remaining but a fibrous cord. On microscopic examination there is but little hyperæmia; the interstices are crowded with leucocytes and granular cells, but the most important change is the overgrowth of interstitial connective tissue, and the consequent fatty and atrophied degeneration of the nerve fibres with their axis cylinder; with injury to the nerve, occur secondary trophic changes."

Secondary trophic changes in chronic neuritis: The trophic changes dependent on chronic neuritis are frequently very prominent and important. Most commonly there is paresis, which may deepen into paralysis with atrophy of the muscles and degenerative reaction. The skin sometimes becomes rough and scaly, sometimes atrophied, smooth and shining (glossy skin). Œdema of the subcutaneous cellular tissue is often seen. The hair of the affected part shows sometimes increased growth, sometimes it falls off. The nails may become thickened, rigid, and distorted. Deformity of joints with enlargement of the ends of the bones is not infrequently met with as the result of chronic neuritis. In short, we may meet with all of those trophic changes which have been described as arising from neural irritation, and which occurs in chronic neuritis as the result of compression of nerve fibres by the contraction of the proliferative connective tissue in the nerve trunk."

The diagnosis of chronic sciatic neuritis from chronic sciatic neuralgia cannot always be made, but the following conditions may be observed, viz.: That the neuralgia is generally dependent on some constitutional dyscrasia reflex irritation, compression of nerve by a contracting scar, a morbid growth, or a callus, and by removing the cause or disease on which the sciatica is dependent, the latter is ameliorated or cured; antemortem inspection of the nerve on exposure, may give no evidence of disease, and be considered neuralgic, though in obstinate cases it may be presumed there was a neuritis, or a perineuritis, or at least a hyperæmia of the nerve for the starting point. Heat, redness, swelling and pain are not absolute in neuritis as in other inflammatory affections.

There may be relative constancy of pain with the secondary trophic changes, spasm, atrophy, and paresis of the muscles, with atrophy and

coldness of the limb supplied by the nerve and conditions of causalgia, hyperæsthesia, paræsthesia, or anæsthesia with tenderness of the nerve along its tract together with the long standing of the disease; and in addition there may be organic nutritive changes affecting the skin, hair, nails, or the bones which would be diagnostic of neuritis or perineuritis.

The sciatic nerve being a mixed nerve, both sensory and motor. There will be two sets of symptoms in chronic sciatica. The sensory symptoms usually precede the motor, and are much more prominent for many weeks, months or years. The motor may be absent altogether. From the sensory there will be more or less continuous pain. At times paroxysmal, perceived at different points along the nerve trunk extending into its peripheral branches, and sensations of heat, cold, numbness and tingling sensations, hyperæsthesia, causalgia, or anæsthesia in the trunk or peripheral branches of the nerve. From the motor fibres there may be twitching and impaired functions of the muscles, amounting in many cases to spasms, or the motor fibres may be so involved as to cause paresis and atrophy of the muscles with impaired circulation, and nutrition with atrophy and coldness of the limb. Fortunately, for the victim of chronic sciatica many of the morbid states of both the motor and sensory fibres are absent. In most cases only a few having all the conditions enumerated.

Sciatica may extend centrally and involve the spinal cord. It is often quite painful or impossible for the patient to assume the sitting posture, owing to the extreme tenderness of the nerve trunk near the tuber ischii. Again it is impossible for the patient to lie in bed on the side of the affected nerve, or even on the back, owing to the great tenderness at the posterior inferior spine, of the ilium and fold of the buttock, unless the pressure of the bed is removed from the tender points by soft pads, or pillows placed under the knees and back, or the latter, and outside of the thigh.

There is an attitude and gait peculiar to the chronic sciatic patients, accurately described by M. Charcot in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, vol. xii, Feb. 16, 1889, No. 7. and he is the only writer, or authority known to the writer, who has given this description. In both of my patients who were nerve stretched the gait was quite characteristic. The first patient had chronic sciatica of the right sciatic nerve. The trunk was inclined to the left, the vertebral column described a curve with its convexity to the right, the left hand descended much lower than the right, the right lower extremity was semi-flexed, the buttock of this side presented a flattened appearance, the gluteal fold being elevated; finally the heel of the right foot did not touch the floor (Charcot attitude). The limb was atrophied and cold, one inch and one half smaller from hip to foot than the left, and patient was unable to sit on the right buttock. The condition of the nerve on exposure before stretching was this: The neurilemma was found to be thickened, congested, and numerous reticulations of small blood-vessels ramified in the sheath; the latter, had lost its opacity, and was of a pinkish yellow color, had many nodular deposits, and had many adhesions to the adjacent tissues, showing plainly that the case was one of chronic sciatic perineuritis. Attitude of second case, left sciatic nerve affected, the trunk was inclined to the right, the vertebral column described a curve with the convexity to the left, when the pain was great or recurred in paroxysms, the left lower extremity partly flexed, except when walking on the street the buttock of this side presented a flattening, the gluteal fold being elevated, the heel of left foot did not touch the ground, or floor, without pain in the thigh. In the recumbent posture the left limb was flexed, pads or pillows had to be placed under the knee and back to remove pressure from the tender points, otherwise the patient could not lie on the back or left side; the limb was one and one-half inches smaller from hip to foot than the right one, and cold and atrophied, and patient was unable to sit on the left thigh and buttock. The pathological state of the nerve found on cutting down upon it and exposing it, were some fibrocystic tumors and nodular deposits on the nerve (perineuritis nodosa chronica), and bands of lymph and adhesions. Between the sheath and adjacent tissue the neurilemma had lost its normal appearance and showed signs of fatty degeneration, and was traversed by many small blood-vessels. This was also a case of chronic perineuritis. Both of these patients had the hyperæsthesia of the skin in which touching, or brushing the affected parts causes a peculiar, disagreeable, nervous thrill, from which the patient shrinks, but which, however, is not a pain

The treatment of chronic sciatica may be medical, mechanical, electric and surgical. It is presumed that tonics, restoratives, alteratives, and all other constitutional measures have been given a thorough and faithful trial, and that the condition, or disease on which the chronic sciatica was dependent has been removed or cured, and that such local measures as the employment of morphine, chloroform, sulphuric ether, osmic acid, atropin, cocaine, ice-water, antipyrin, and spraying locally with sulphuric ether, chloride of methyl, or rubbing the nerve tract with menthol or aconitia ointment, or ice, the free use of blisters, the hot or cold douche, massage, electricity, and actual cautery have been used, weighed in the balance, and found wanting, before the numerous surgical procedures are resorted to.

The local application of the actual cautery over the bed of the nerve, at three to five points,

at intervals of two to six inches, frequently ameliorates the condition of the patient, or cures the disease. The cautery iron, the paquelin cautery, or a glass rod heated to a white heat, over a spirit lamp, and applied in quick succession at points two to six inches apart, is preferred by the author. The latter does not blister, nor cause a running sore, but makes a dry burn of the integument, and is equally as effective as the other cauteries. Sulphuric ether or chloroform, at first seem to have a counter-irritant, than an anodyne effect when inserted into the bed of the nerve, and should be used in drops ten to thirty daily, or two or three times a week. The local use of morphine, atropin and cocaine, is much enhanced by combining one or more of these agents with one or the other of the drugs.

Graham speaks very highly of massage in the treatment of chronic sciatica, and gives a number of cases of several years duration—one case extending over nine years. Not only is it highly essential to the neuralgia or perineuritis, but it arrests and prevents secondary trophic changes; it increases the circulation, nutrition, and growth of the limb, and is anodyne besides.

Before cutting down and laying bare the nerve trunk to stretch, or even to perform Nussbaum's bloodless nerve stretching for the relief of pain, or any other purpose whatsoever, massage should be thoroughly tried, as the action of this method is somewhat similar to that of the other, releasing the nerve from neighboring tissues that compress it, and producing changes in its structure and circulation, and lessening its irritability, perhaps, by over-stretching. Massage and mild stretching might succeed when more violent stretching would fail. Langenbeck makes use of massage in the vicinity of the wound, after the violent stretching by surgical operations. In both of the writer's cases which were nerve stretched, massage had been given a faithful trial, and all other milder procedures, before resorting to nerve stretching. In the early and late stage of neuritis, massage is indicated; in the early it would act as a prophylactic, relieving congestion by causing a free circulation in the surrounding tissues, and by pushing the blood out of the distended vessels. In the late, by causing absorption of inflammatory products, the repeated mechanical effect of manipulation and percussion upon old neuralgia benumbs and lessens the sensibility of the nerval filaments, and gradually decreases it, hence its use in chronic sciatica; not only may pain be relieved, but states of hyperæsthesia, paræsthesia, causalgia and anæsthesia are relieved by massage, in addition to massage inunctions of vaseline, or olive oil are indicated in the secondary trophic changes of chronic sciatica. Massage should be used by gentle stroking, firm pressure, and slow, deep kneading. Acupuncture in chronic sciatica is a valuable remedy, as well as in lumbago and other neuralgias, and rheumatic affections. Patient is laid upon the face, the tender points are found, and one or more needles inserted from half to one and a half inches, and allowed to remain from a half to two hours. The number of needles used is from one to six. In sciatica the needle should actually penetrate the nerve. This is known by the patient complaining of a sudden, sharp, shooting pain down the back of the thigh; this action may be due to the escape of nerve fluid, also to its counter-irritant effect. Cocaine may be used hypodermatically in connection with acupuncture.

Electricity.—The galvanic current has the precedence over the faradic, in relieving neuralgia, and also in chronic sciatic neuritis. It causes better nutritive and functional changes in the nerves and nerve centres, and causes restoration from many morbid conditions of the sensory fibres. The faradic is, perhaps, better indicated in the secondary trophic changes of chronic sciatica neuritis, affecting the motor fibres. Electricity has an anodyne effect and relieves the accompanying neurasthenia. It makes little difference whether the anode or cathode is used in the neighborhood of the nerve. The direction of the current is of no material importance.

Treatment.—In addition to acupuncture, the following surgical measures may be resorted to when other means have failed. Brown-Séquard has recommended exposure of the nerve and washing it in ether to effect the same end as nerve stretching. Nussbaum recommends bloodless nerve stretching in sciatica, which consists in having the patient etherized, whereupon the thigh is forcibly flexed on the pelvis, and then the leg extended on the thigh, and the foot on the leg—dorsal flexion—and held for a short time in this position. A considerable degree of stretching of the sciatic nerve is possible—in this way, a number of cures have been made—though less dangerous than stretching the exposed nerve, it is no trivial operation. The effects of nerve elongation are these, viz: Central elongation affects sensation, and peripheral mobility, direct and reflex excitability of the nerves disappear under the influence of strong traction, and is increased under limited traction. Sensibility is increased at first, and disappears more or less completely and more or less permanently according to the force employed and duration of the time of traction. Sensory fibres lose their excitability before the motor fibres. (Baum and Nussbaum). Mobility is less influenced than sensibility, and is reëstablished by slight elongation.

Modus operandi of elongation.—This is considered by some neurologists to act by diminishing the conductibility of the nerve, others by freeing it from adhesions, of pathological sources of compression. As regards function, nerve

stretching has but little influence on mobility, and when well performed is never followed by persistent paralysis; on the contrary, a permanent anæsthesia is indispensable to its therapeutic action. When it is directed, as is most frequently the case, against an exaggeration of the direct, or reflex sensory—motor irritability of the nerves.

Most nerve stretching has been done for neuralgia, especially sciatic neuralgia, giving more successes than on other nerves, and for other affections. Should the first operation of nerve stretching not succeed, a second one may be done after a reasonable length of time. Prof. H. B. Sands, of New York, has done nerve stretching the second time for chronic sciatica on the same patient, having performed the first about six months previous to the last. A degree of contraction may follow a rheumatic, or gouty deposit in the nerve sheath, and thus affect the nerve current in the centre of the fibre, which may be drawn out by the nerve stretching, the normal function of the nerve tubule being thus restored temporarily or permanently. The success may be owing to an alteration in the relations between the nerve fibres, having the effect of improving their nutrition. (Nussbaum). Nerve stretching is a less serious operation than nerve section, and more efficacious, and should be done in preference to the latter in chronic sciatica.

Indications for nerve elongation are, first, violent pain; second, continuous and annoying hyperæsthesia, paræsthesia, or causalgia; third, anæsthesia; fourth, paresis and atrophy of the muscles and limb to cause nutritive changes. Mild traction on the central end of the nerve, for sensation, and the distal end for mobility; fifth, the prevention of structual changes in the spinal cord; sixth, it may be used as a *dernier ressort.*

Nerve stretching is effected by cutting down upon the nerve trunk, detaching it from its connections for the space of a few inches, laying hold of it with the fingers, forcibly stretching the whole nerve from its origin to such an extent as to affect powerfully its functions, and then closing up the wound. In some instances a certain amount of loss of sensation or muscular power in parts to which the nerve is distributed is the immediate result, which, however, passes away after a certain interval, and the nerve function becomes more or less completely restored. When the sciatica is due to the pressure of tumors, or neuromata in the nerve tract or neighborhood, in addition to removing the tumors, the nerve may require to be stretched on account of its diseased condition, and the operation would not be complete unless the nerve was elongated.

From ten to thirty or forty pounds traction on the nerve is required; the amount of traction depending upon whether it is for the relief of pain, anæsthesia, hyperæsthesia, or to increase the mobility and nutrition of the limb. Rupture of a moderately large nerve is not to be feared, since Baum has proven it is impossible to employ a force of more than 33 lbs. av. in making extension with a grooved director.

The pathological anatomy of nerve stretching consists in a laceration of the sheath, and in rupture of the blood-vessels which are distributed to its interior.

Schliech says a coagulation of myelin occurs; Tarchanoff says immediately after elongation traces of hyperæmia and capillary hæmorrhage and the division of a certain number of nerve fibres of the myelin and axis cylinder are found; the sheath of Schwann always remaining intact. Scheving found healthy fibres, especially at the centre of the nerve, and fibres in a state of fatty degeneration. In fine, nerve stretching seems to cause most frequently the rupture of a certain number of nerve faciculi. Forcible elongation of large nerves does, sometimes, affect even the spinal cord. Sequelæ of nerve stretching are sensory or motor paresis, one or both, depending upon the amount of traction employed. If forcible traction on central end of nerve trunk has been exercised anæsthesia results; otherwise, hyperæsthesia. By slight traction on the distal end motor paresis or chronic sciatica may be relieved or cured. To control spasm of the muscles supplied by the sciatic nerve, forcible traction will produce paresis. Rigors within an hour after the operation of nerve stretching frequently occur. Should insomnia and neurasthenia not precede the operation they will attend it. Retention of urine for a few hours may supervene.

The treatment of patient after the operation is of great importance. It is desirable to get primary union of the wound in order to avoid the formation of a cicatricial tissue and compression of the nerve after the operation. For the first few days after the operation the limb should be kept extended at rest, and bandaged from the toes above the wound. After the seventh or fourteenth day passive motion and massage should be applied to the limb and affected muscle supplied by the nerve, to prevent adhesions and further degeneration and atrophy of the nerve, muscles and limb. The limb should be bandaged from three to six weeks to prevent œdema, to support the groups of muscles, and to prevent stretching of the scar, and to hold the limb in normal position until the nerve is regenerated, and the limb restored to its normal state. Sayres' artificial rubber muscles, a splint, or a removable plaster-of-Paris boot may be necessary to hold the limb in its normal position and prevent torsion and extension of the foot inwards, until the temporary motor paresis is cured. During the convalescence of most cases anodynes, soporifics and nerve tonics will be indicated. Exercise in the open air and sunlight on crutches, and in the wheel invalid chair, are highly essential, and should be employed with consistency.

In many cases it may be necessary to use local and general electricity, or both, to hasten the recovery of the motor paresis and the secondary trophic changes, and counteract and relieve the neurasthenia that generally accompanies the chronic sciatica before the operation, or which usually follows it.

The success of nerve stretching: In chronic sciatica, in 168 cases collected from various sources 153 have been cured, 15 cases temporarily benefited. In other neuralgias, out of 189 cases, 132 have been cured, and 33 permanently benefited. Bryant gives 70 operations of nerve stretching for sciatica; statistics indicate that in 60 the patients were either cured or greatly relieved, and that in the majority of cases the relief was permanent. The writer is informed that Mr. Calendar and other English surgeons have had about 60 per cent. of recoveries from nerve stretching.

As an extreme measure and a last resort, nerve section has been done for chronic sciatica and other neuralgias. Neurectomy has been done by Sapolino, Brinton, Morton, Hodge, Vance, Golding-Bird and Wyeth with at least temporary benefit. Cures have been reported of neuralgia that was cured by resection when nerve stretching had failed.

THE ORIGIN OF PUS.

Read in the Section of Dental and Oral Surgery at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY WM. ATKINSON, M.D.,
OF NEW YORK.

It is the gift of genius to foresee discoveries even for centuries. Such a genius was John Hunter, of London, who toward the end of the last century, merely upon the ground of speculation and ratiocination, made the assertion that inflammation is nothing more than a return of the tissues to embryonic condition. And our present knowledge of the process of inflammation and suppuration is a strong proof, supported by careful researches of good pathologists of Germany and England, that Hunter's theory was the correct one.

Since microscopy became a science (a period covered by half a century) the views concerning the intimate nature of the inflammatory process have been greatly at variance. These views largely depend upon the general ground taken by pathologists in reference to the pathological processes at large. We have three marked phases in the development of pathology within the last fifty years. The first is the standard of humoral pathology promulgated by the late Rokitansky, of Vienna. The second is the phase of cellular pathology established mainly by Virchow, of Berlin. The third phase, still in vogue with many pathologists, is the doctrine of emigration of colorless blood corpuscles or leucocytes, as propounded by the late Cohnheim, of Leipsic. I personally went through all these phases and am willing to admit that each meant progress, and still I have grown old enough to convince myself that neither of the views mentioned contained the whole truth. I have witnessed researches going far to prove that it is mainly a combination of the previous views that makes us approach the truth. I say approach, for there is no reason to deny that coming decades will bring us forward still more in our understanding of the intricate nature of the process termed inflammation and suppuration. During the past five years bacteriology has held sway of the minds of the majority of the pathologists, proving what was just stated. To-day no one will be rash enough to neglect the influence of bacteria in producing suppuration. And have we not learned through excellent observers that it is not the microörganisms themselves, but rather their chemical products, the ptomaines, that play an important rôle in the causation of suppuration and possibly of inflammation. I here allude to the latest researches of Seber, of Goettingen, who maintains that it is a ptomaine, called by him *phlogestein*, that stands in causal relation to inflammation.

The task I have undertaken is to bring before you a review of the theories held in the last fifty years, closing my historical remarks with a description of what I consider to be the truth today. The review of such a history is instructive in many respects. It teaches us that none, be he of the most gifted talent, is able to emancipate himself from preconceived ideas and accepted notions. It furthermore teaches us that we are the subjects of general theories extant for the time in which we make our investigations. It teaches the great lesson of modesty and humility. If a man of my age must confess in the seventh decade of his career that he has been misled in his younger days by books and teachers and must try hard to unlearn what he thought he knew before, it is certainly proof of human frailty, and goes far to prove that we are obliged to consider the truth to be truth only *pro tempore*, viz.: so long as we do not know better. Our successors will surely step over our shoulders and will estimate our work only by considering the amount of time, honesty and acuteness of mind spent in bringing forth new facts and new revelations.

In the fifth decade of our century humoral pathology was thought to hold the full truth in the explanation of inflammation. The older of us will remember which facts the humoral pathology was based upon. The web of the foot of a living frog was expanded over a cork ring and the web touched with an irritating agent, such as a droplet of ammonia, an acid, or with a pointed, red-hot iron, and the subsequent changes observed under the microscope with the comparatively low powers

at the disposal of investigators of the time. They saw around the irritated portion of the web an undulation of the currents of the blood within the vessels, shortly afterwards a slacking of the current, and still later a standstill of the stream. The last phenomena they called "stasis," and this stasis was thought to be the essential feature of the inflammatory process. Many and animated controversies arose over the question, what is the stasis due to? Most observers agreed that a paralysis of the capillary blood-vessels, after a few preceding contractions, was to be considered the cause of stagnation. At the same time an inundation was seen to take place in the affected tissues with a liquid which of necessity must have come from the general blood column, and was termed "exudate." According to the nature of the exudate different varieties of inflammation were set up, such as the "serous," the "fibrinous," the "albuminous," and should blood have been admixed with the exudate, the "hæmorrhagic." Corpuscular elements seen in the affected territories and apparently suspended in the *exudate* were thought to have originated from the exudate itself, therefore the pus corpuscles would have originated from the exudate, the latter from the blood, hence the definition of pus, "dead blood." No stress was laid upon the structural changes of the affected tissue itself, except so far as the exudate saturating this tissue was concerned. The ultimate cause of inflammation and suppuration was sought in chemical mixtures of the blood, termed dyscrasia, which means bad mixture of the blood. If a person became affected with lobar pneumonia the cause surely was surplus of fibrin in the blood, or fibrinous dyscrasia. If a person produced a number of abscesses in his organism the cause was denominated purulent dyscrasia. All diseases were, in this dyscrasic view, essentially diseases of the blood. The blood in its mixture caused the diseases simply by being overloaded with obnoxious or effete material.

The man who dug the grave of humoral pathology was Virchow, in the beginning of the sixth decade of the present century. To him the phenomena of alterations in the circulation of the blood were of secondary importance. The stasis he would not admit as a cardinal symptom of inflammation for it would mean rather death of the tissue, gangrene or necrosis. The exudate also played but a secondary rôle, serving only as a pabulum to the living corpuscular elements of the tissues, the so-called *cells*. Inflammation was, in Virchow's opinion, a structural change of the affected tissue, mainly morphological changes of the cells themselves. The cells being the seats of life would attract and, as it were, imbibe the exudate, swell up, divide and come to a state of proliferation, in which a number of cells would arise from an original single cell, and the large number of newly-formed cells would replace the intercelular substance lost by liquefaction. A formation of cells out of a previous liquid or semi-solid exudate was declared to be impossible, since all newly-formed cells must have arisen from preëxisting cells. Dyscrasias were done away with. The main causes of inflammation were peculiarities of the tissue itself, and a certain weakness of the tissue was proposed to explain the predisposition to inflammatory processes. The word suggested for this supposed local weakness of the tissue was "diathesis." If a man suffered from articular rheumatism the cause was said to be "rheumatic diathesis." Tuberculous persons were predisposed to cheesy degeneration simply because they were afflicted with *tuberculous* diathesis. In the same sense hæmorrhagic purulent diatheses were spoken of. The pus corpuscles were without exception an offspring of the previous cells of the tissue, and in this sense pus was considered dead tissue. Cellular pathology has made a very strong impression on the minds of observers. Even the stalwart humoral pathologist Rokitansky yielded to the novel views and accepted the doctrine that no cell will grow in an exudate unless previous cells be there. Cellular pathology even in our day governs the minds of most pathologists over the civilized world. Proliferation of the cells accounts for all tissue changes, either newly-formative, the so-called hyperplasia, or destructive, that is, suppuration. Proliferated cells being present in either of these instances, cellular pathology is at a loss to explain why a certain tissue, owing to proliferation of its cells, becomes augmented and hyperplastic in one instance and is destroyed by suppuration in the other. Still, in spite of all weaknesses of this doctrine, we must consider it an advance in comparison with the teachings of humoral pathology. The cell being supposed to be the only center of life, inflammation and suppuration were for the first time considered as the phenomena of life, and the idea began to dawn in the minds of pathologists that inflammation and suppuration were morbid processes occurring in tissue elements endowed with life, the so-called cells.

The third period arose in the middle of the seventh decade of our century, when Cohnheim observed a migration of colorless blood-corpuscles through the walls of the capillaries and small veins of an exposed and expanded mesentery of a frog. Several years before S. Stricker, in Vienna, observed the red corpuscles pass through the walls of the capillaries of the nictiant membranes of the live frog, so-called diepiesis. Even in 1848 the emigration of leucocytes had been seen in England by Walker and Wallace. The facility with which the emigration of leucocytes could be seen under the microscope has induced many German pathologists to accept the view of Cohnheim, that inflammation and suppuration are but an emigration of colorless blood-corpuscles.

These accumulating in a tissue whose cells would remain inert and whose intercellular substance would become liquefied and destroyed, furnish a representation of both inflammation and suppuration. With this view there was nothing alive in the body but the leucocytes. At first Cohnheim denied the participation of the so-called stable cells in the process of inflammation, but later he admitted that in reparative inflammation the tissue cells do proliferate and furnish their share for the benefit of newly-forming tissue, exactly in the sense of cellular pathology. That pus corpuscles should be emigrated colorless blood-corpuscles was intelligible, as were isolated corpuscles nearly identical in appearance. How new tissue could form from leucocytes remained a deeply-shrouded mystery, as no observation has as yet proved that through coalescence of leucocytes new protoplasmic masses and new tissues can arise. The observation of Zeigler, of Tübingen, that multinuclear bodies, so-called giant cells, are invisible between thin glass plates introduced under the skin of an animal lacks the proof that such giant-cells arose by coalescence of leucocytes. On the contrary, later observations made especially upon deciduous, replanted and implanted teeth, go far in proving the giant-cells to be an offspring of the myxomatous granulation tissue, sprouting in all directions, filling the bay-like excavations on the deciduous and other teeth and carrying blood-vessels into places where there had been none before, leading to the vascularization of a new tissue, seen, for instance, in sponge grafting.

S. Stricker immediately sought to overthrow the teachings of Cohnheim. In his investigations he used almost exclusively the cornea (chiefly of frogs, cats and rabbits); in which he brought inflammation by introducing a thread. The changes were faithfully watched up to the formation of abscess around the foreign body. The observations enabled him to prove the established views of cellular pathology to be correct, namely, that these so-called cells divide and subdivide, but also that the coarser offshoots of the cornea corpuscles split up, and by division produce new corpuscular elements. Stricker also held, up to 1874, (Ashurst's International Surgical Cyclopædia), that pus corpuscles were products of proliferation of the cornea corpuscles and their coarser offshoots. Unfortunately he calls all the products of cells originating from proliferation of previous cells pus corpuscles. Indeed it was impossible to discriminate between inflammatory corpuscles and pus corpuscles, since all of these appeared isolated under the microscope. Clinically it is well established that every inflammation does not terminate in suppuration. Particularly do we know of a termination which instead of causing destruction of an affected tissue, as suppuration does, brings about a new formation, an increase of the bulk of the tissue, the so-called hyperplasia. How shall we explain such marked differences by the theory of cellular pathology, which claims all corpuscular elements are isolated from the start? However, since 1880 Stricker is a convert to the views of C. Heitzmann, established in 1873, which doctrine I advocate, having studied specimens, illustrative of inflammation and suppuration, under the microscope in that investigator's laboratory.

Let us recapitulate in a concise way the views held by the said C. Heitzmann concerning the normal or physiological structure of tissue. He holds that there is no isolated or individual cell in any variety of tissue in either the animal or vegetable organism. Such individual corpuscles are met with only in the fluids of the body, such as the blood, where they are named red corpuscles; in the lymph, called lymph corpuscles; in the saliva, called salivary corpuscles; in the sperm, called spermatazoids, etc. Neither the blood nor the lymph, nor any of the fluid, semi-solid secretions deserve the name of a tissue. Tissue we call a continuity of not only organized material, but a material endowed with all the properties of life, such as mobility and the capacity of reproduction. Tissues hold at certain intervals protoplasmic bodies, so-called cells, the vast majority of which are in continuity with the living matter held by those substances, previously termed "intercellular" and to-day they are known by the names of basis and cement substance. The greatest amount of living matter is present in the centers of protoplasmic bodies, where they appear as nuclei and nucleoli. The surrounding protoplasm, in full development, holds the living matter in a reticular arrangement and such a reticulum is traceable throughout the surrounding basis substance, hitherto considered as entirely inert. Thus an uninterrupted connection is established from one "cell" to another by the intervening bridges of living matter. This same arrangement being present throughout all tissues of the animal organism, a continuity of all the tissues composing such organism is established. Recent researches of botanists go far to prove that even in the plants there exist no individual cells, but the intervening cement substance, or cellulose, is traversed by minute bridges of living matter, rendering the plant an individual from the tips of the leaves to sporacles of the rootlets. Recent observers in animal and vegetable microscopy have drawn attention to the fact that by means of certain reagents the nucleus will be split up into loop-like threads, a process which they consider precedes the division of the nucleus and indirect division of the protoplasm. This process is termed karyokinesis, or mitosis—"fibrillation," "thread making." This observation is had only with certain reagents and is not visible in the fresh specimen or in one preserved in a chromic

acid solution. Suspicion naturally arises that the loop-like figures of the nucleus are artificially produced and thereby their connections are rendered invisible. The threads forming loops are called "chromatin," because readily stained by analine dyes, whereas the intervening substance and the protoplasm itself stain but little, and therefore are "acromatin." Facts rendered conspicuous by staining appliances only are of doubtful correctness. The fact that there are threads and loops in the star-point form arrangement in the nucleus rather proves the latter to be made up largely of living matter, which is known to change shape any moment. Coarse formations of living matter readily stain with analine dyes, whereas delicate formations of the same substance will not stain. The connections between the loops of the nucleus and the surrounding radiating reticulum of the protoplasm are plainly visible in fresh specimens, and also those preserved in liquids which we know will not alter the structure of protoplasm, such as a solution of chromic acid of one-tenth to one-half of 1 per cent. Alcohol as a preserving fluid is far inferior, owing to the shrinkage it effects.

Let us analyze the construction of dentine (most important to dentists, since it builds up the main mass of the tooth) in the light of this novel doctrine, for which the late Louis Elsberg, one of its most enthusiastic advocates, suggested the term bioplasson theory. Dentine has no cells, but is composed of a dense, firm basis substance (not cartilaginous as formerly thought but glue yielding, similar to that of bone tissue) thoroughly infiltrated with lime salts. This basis substance is traversed by the canaliculi which radiate from the surface, occluding the pulp chamber toward and join the cement and enamel. Each canaliculus holds in it a delicate fibril, the so-called Tomes fibre, around which exists a minute space filled with a liquid, obviously the carrier of nutrient and denutrient substance. Fine thorn-like offshoots were known, especially in transverse sections of dentine, to emanate from the fibril, traverse the surrounding space and fade upon approaching the wall of the canaliculus. Now in the light of the bioplasson doctrine the Tomes fibres are formations of living matter. From them arise transverse conical offshoots penetrating the walls of the canaliculi and in connection with a delicate, nearly rectangular reticulum traverse the whole of the basis substance and connect the tenant of one canaliculus with the neighboring tenants directly, and therefore all the others indirectly. The presence of this reticulum was first established by C. F. W. Bödecker, in 1878, who saw light rents in the basis substance and assumed them to hold living matter without being able to directly prove its presence.

This proof has been quite recently furnished by Wm. Carr, who after decalcification of the dentine by means of a 6 per cent. solution of acetic acid rendered the reticulum visible by staining with a chloride of gold solution, and also osmic acid. These last results have not as yet been published by their observer. I have seen his own specimens through lenses of 1,000 to 1,200 diameters with good immersion, and am convinced of the presence of the reticulum throughout the dentine.

Thus we understand how dentine can grow and be nourished, and realize it is a tissue endowed with sensibility prominently at those places which abound with living matter, such as the periphery toward the enamel and the cementum at the neck of the tooth. Therefore we can appreciate that living dentine, if irritated by a foreign body, such as a mass of gold filling, or chemically by acids, will react upon this injury, become inflamed and produce a new tissue, called osteo-dentine, which sometimes is more compact than the original. This process of the inflammation of the dentine, called "eburuitis," was carefully studied by Dr. Bödecker a few years ago, and although he has not yet completed his studies upon teeth which had been filled with different materials for months and years, every intelligent dentist knows that such a reaction exists. This fact is utilized by all of us in introducing highly-irritant agents, such as oxyphoshate of zinc, into otherwise poorly calcified, so-called soft, teeth. The result after some months is a compact wall of the cavity made up of osteo-dentine, or secondary dentine, and better fitted to tolerate a gold filling than it was before this temporary filling. How can we understand these changes and the toleration of highly conductive filling, unless the tooth substance be a veritable living tissue throughout its extent? Whenever irritation is brought to bear upon a living tissue reaction will follow, and this is inflammatory process. The first that occurs is liquefaction of the basis—or cement—substance, probably induced by the presence of an acid, mainly lactic, thus the living matter previously concealed (held) in the basis—or cement—substance becomes liberated and the protoplasmic form of the basis substance reappears. This condition has directly been observed by S. Stricker on the cornea of frogs, as before stated. He saw the basis substance in motion, changing the configuration of its living matter, under the microscope, much like clouds changing on the face of the sky. Next the protoplasm furnishing the substratum of previous basis substance becomes split up into small bodies, known as medullary, or embryonal, or inflammatory corpuscles. Any portion of living matter of such indifferent bodies may grow to the size of a nucleus, owing to the presence of an excess of pabulum beyond the physiological requirements of these bodies, an excess essential to the inflammation. Not only the original "cells," but the intervening basis substance will participate in the formation of new

elements or inflammatory corpuscles. Here is the distinguishing feature between modern and antique pathological views, for according to the latter only the "cells" themselves were considered active and capable of proliferation. The sum total of the newly-formed inflammatory corpuscles is known under the term inflammatory infiltration, which means that a certain amount of a tissue, be it connective, muscular or nerve tissue, is replaced by and transformed into newly-appearing protoplasmic bodies in the stage of indifference, that is, being purely protoplasmic tissue bodies without any distinctive character either as to origin or destiny. So long as the inflammatory corpuscles remain in continuity by their delicate offshoots they represent a tissue, though in a condition of indifference, or embryonal state. Such a tissue by new formation of a basis substance will either return to the previous normal state, terminating the inflammatory condition in "resolution," or, being considerably augmented itself, will produce a tissue much greater in bulk than the one originally inflamed and we will have hyperplasia. In neither instance will the inflamed tissue cease even for a moment to be tissue. The tissue which is the bearer of the blood and lymph vessels is the connective tissue, and connective tissue is the only bearer of these vessels. And here is the starting point of inflammation in almost every instance. This we understand from the fact of the rather low dignity and activity of the connective tissue. We look for the greatest reaction on irritation at the sources of nutrition, obviously the blood-vessels. Muscle, nerve and epithelial tissue react in rather a secondary manner on inflammation of connective tissue. Virchow proposed the name "parenchymatous inflammation," for the designation of the inflammatory process, which term may be retained if restricted always to a secondary manifestation upon the primary inflammation of the "interstitial" connective tissue. A gland, for instance, is a compound organ composed of parenchyma according to Virchow, which is the epithelial glandular tissue. This is surrounded with and accompanied by connective tissue bearing many blood-vessels. It is impossible that the glandular tissue could be the primary seat of the inflammatory process. This process will be present in the connective tissue first and more or less rapidly invade the glandular epithelial tissue. If the connections of the inflammatory corpuscles be severed we shall have a certain number of isolated medullary or embryonal corpuscles suspended in an albuminous liquid.

Pus is therefore the resultant of destroyed tissue, but quite unfit for the production of any form of tissue. How much the emigrated blood corpuscles contribute to the formation of pus may not yet be positively stated. However, we do know positively that upon the approach of suppuration in a certain tissue its blood-vessels are destroyed without exception in the territory involved. The blood-vessels, by outgrowth of their endothelia, become at first solidified and afterwards split up into medullary and pus corpuscles, the same as all the other elemental constituents. Even the smooth muscles of an artery will partake in this pus-forming process. The amount of migrated leucocytes cannot be great, considering the loss of the vessels which have supplied them. Pus is destroyed tissue, first originating in a closed cavity bearing the name of "abscess," or, secondly, coming from the walls of physiologically shut cavities, termed "empyema," or, thirdly, springing from exposed tissue surfaces, viz., such as granulating surfaces of wounds, termed "pyorrhœa." In the two latter instances, namely, empyema and pyorrhœa, the emigration of colorless blood corpuscles plays a far more important rôle than in the case of "abscess." In granulating surfaces of wounds, especially, the source of the pus corpuscles must be sought mainly in the capillaries, which abound in the myxomatous granulation tissue, producing loops therein, upon the grouping of which depends the raspberry look of the so-called "proud flesh." Around an abscess a dense layer of fibrous connective tissue is formed very soon—beautifully displayed in alveolar abscess at the apices of diseased roots of the teeth. This newly-formed layer represents the productive activity of inflammation, being hyperplastic, fibrous connective tissue, more or less well supplied with blood-vessels. Old pathologists termed this layer "membrana pyogena," which signifies that the membrane itself produces the pus. This view was abandoned long since, and to-day the membrana pyogena is known to be a secondary formation in the appearance of an abscess, as it were, a protective wall to the healthy tissues. After the evacuation of the pus from an abscess or an empyema, either by spontaneous rupture of the covering layer toward the surface, or artificially by knife or caustic, the membrana pyogena changes its character and becomes the seat of an acute inflammation, which leads to the formation of a freely-vascularized myxomatous tissue. This is what is called "proud flesh," or granulation tissue. In all instances in loss of tissue by suppuration the final result is the formation of a scar. This consists of a dense fibrous connective tissue whose bundles freely interlace and which is, as a rule, scantily supplied with blood-vessels. It is an outcome of myxomatous granulation tissue and is covered with epithelium whenever the pus has been discharged through the skin or a mucous membrane, which themselves appear in a normal condition with an epithelial layer.

Pus, therefore, is a tissue disintegrated and broken up into indifferent or medullary corpuscles which are suspended in a liquid more or less

rich in albumen. How much the emigrated leucocytes share in the formation of pus corpuscles may not be determined. The pus corpuscles remain alive as long as the liquid surrounding them is sufficient for the support of their nutrition. Even fatty degeneration of the pus corpuscles, as seen in chronic abscesses, will not altogether deprive them of their vital phenomena, such corpuscles, if transferred upon a slide, remain amœboid, and they die only by exposure to a low temperature, or after the addition of chemical reagents, or within the body by being deprived of their nourishing liquid. The last condition is noticed in cheesy degeneration of the pus so often met with in tuberculosis. A question now arises. What is the cause of the formation of pus? Ever since the famous experiments of Cohnheim and Counselman, who introduced vials filled with croton oil under the skin of rabbits, with antiseptic precautions, and after healing was complete cracked the vials, subcutaneously, thus producing an abscess, this is a much mooted question. A host of experimenters who have repeated these trials have taken views pro and con of the question. I consider the experiments of P. Grawitz and W. de Bary, published in Virchow's Archives, 1887, the most valuable testimony towards settling this question. They found that the subcutaneous injection of concentrated solution of chloride of sodium in rabbits and dogs was followed by œdema, a swelling of the facia, but no suppuration. It makes no difference whether the solution be mixed with a large number of staphylococci. Staphylococcus, with its three varieties, the staphylococcus pyogenes, aureo-albus and citreous, first discovered by Rozenbach, was thought to be essential to the production of pus. And even H. Knapp, of New York, maintained that a small quantity of Croton oil mixed with olive oil will not produce suppuration if introduced into the anterior chamber of the eye of the rabbit, whereas the same mixture if contaminated with pure culture of staphylococcus aureus will invariably be followed by suppuration under like circumstances. Grawitz and de Bary, on the contrary, have proven that not only the coccus named, but certain irritating reagents and different products of microörganisms, not necessarily the staphylococcus, different alkoloids, or ptomaines, are productive of pus. Solutions of nitrate of silver, if injected under the skin of dogs, rabbits, rats and mice, will be harmless if weak, not stronger than .005 of 1 per cent., but when 5 per cent. in strength will invariably be followed by abscess in dogs. Neither acids nor alkalies cause suppuration, except the liquor of caustic ammonia, which if introduced in full strength is followed invariably by suppuration. In neither of these instances were there any microörganisms discoverable in the pus freshly removed from the abscess, or transferred upon nutritive gelatine as a culture medium. Oil of turpentine in rabbits and guinea pigs did not induce pus, even though injected in large quantities, but only inflammation; whereas in dogs oil of turpentine, which is a strong germicide, after subcutaneous injection was always followed by suppuration.

From these experiments it follows that chemical substances entirely free from bacteria and cocci tend to induce the suppurative process in different animals. On the other hand it was experimentally proven that in dogs and rabbits the injection of cultures of staphylococcus into the normal subcutaneous tissues will not induce inflammation or suppuration. It is necessary that a tissue first be irritated to a condition of inflammation, by traumatism or by chemical irritants, to have a soil favorable for the development of staphylococcus, which under these circumstances will produce an abscess. Lately P. Grawitz has shown that the subcutaneous injection of a ptomaine derived from putrescent organic material, called cadaverine, will always lead to the formation of an abscess. From the practical standpoint it is of the utmost importance to work aseptically, or in other words, with such degree of cleanliness that the introduction of microorganisms or their ptomaines becomes impossible. It is well established that even open fresh wounds if aseptically dressed with gauze saturated with a 1:1000 solution of corrosive sublimate and left alone for a few weeks will kindly heal without one single droplet of pus. Corrosive sublimate and carbolic acid are still most reliable germicides. We are not yet prepared to assert that microorganisms alone cause suppuration, since there are irritating chemical substances whose introduction into the body may likewise be followed by this process. Recent observers have maintained that there is a marked difference between a mere accumulation of leucocytes and an abscess proper. In the first instance there may be present a serous or fibrinous exudate entangled with a number of emigrated leucocytes, without a loss of tissue, without, therefore, suppuration. In the latter instance a certain amount of tissue is destroyed and directly transformed into pus. If this view be correct, it certainly strongly supports our present notions of the process of suppuration herewith laid before you in this résumé of my paper.

1. Inflammation is a disturbance of nutrition of a tissue causing a recurrence of the embryonal condition of the tissue involved.

2. The embryonal condition is established by the breaking up of the tissue into those medullary or indifferent corpuscles which, at an early stage of normal development, have built up the tissue.

3. The medullary corpuscles arise not only from the protoplasmic bodies of the tissue, the so-called "cells," but also the intercellular or basis substance is productive of such corpuscles,

as these have shared in the formation of basis substance in the process of normal development.

4. The medullary or indifferent corpuscles will still represent a tissue so long as they remain interconnected and continuous. By a simple reappearance of basis substance the most favorable termination is established, so-called "resolution."

5. If the inflammatory or medullary corpuscles have largely augmented, a number thereby remaining in original connection, the result will be productive, viz.: with a newly formed tissue of increased size, a so-called "hyperplasia."

6. If the inflammatory corpuscles springing from previous "cells," basis substance and blood-vessels break asunder and become isolated, they will be suspended in an albuminous liquid, they will henceforth represent pus corpuscles.

7. Pus, therefore, is a destroyed tissue broken up into its constituent elements, and as such unfit for production of a new tissue, although the single pus corpuscle will remain alive and amœboid almost indefinitely as long as they are sufficiently nourished.

8. The emigration of colorless blood corpuscles certainly participates in the formation of pus and in the purulent discharge of proud flesh or granulation tissue, and is probably the main source of the pus.

9. Suppuration is caused by the presence of certain microbes, mainly the three varieties of staphylococcus, only when a previous inflammation be present in the tissue, furnishing a favorable soil for the development of the before mentioned microbes.

10. Staphylococcus is not the only antecedent of suppuration, it having been proved by experiments that the introduction of certain chemical agents, unfavorable to the development of microbes, may likewise be followed by suppuration.

THE CLIMATE OF SOUTHERN ALBERTA AND ITS RELATION TO HEALTH AND DISEASE.

Abstract of a Paper read at the Annual Meeting of the Canada Medical Association, Banff, Alberta, August 16, 1889.

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It appears to me that no apology is necessary in introducing the subject of this paper. It is only a few years since the opening of our great National highway brought the Northwest Territories into touch with the rest of the world; and only a few years further back since these vast plains and mountains, which are now so quickly becoming the homes of civilized man, were regarded as an inhospitable desert, fit only for the buffaloes which roamed their solitudes and the Indians subsisting on the chase. The past five years have been epoch-making so far as our great West is concerned. Coincident with, and following on the building of the Canadian Pacific Railway, a flood of light began to illumine the Eastern intelligence, and as a consequence settlement has steadily and in a gradually increasing stream poured into the Territories.

It will be readily understood that a country almost equal in area to Russia must have many diversities of climate. As I cannot undertake to speak for the whole of the Northwest, I have limited my remarks to that part with which I am best acquainted, viz.: that strip of country lying along the eastern base of the mountains, and more particularly the southern part of this—bounded, say, on the north by the C. P. Ry. I make the eastern limit a line drawn north and south through Letheridge, although for all practical purposes this line can be extended as far east as Medicine Hat. On the south is the International boundary line, and to the west the summit line of the Rockies and British Columbia. This Southern Alberta comprises an area of 150 miles square, of mountains, foothills and prairie. It is intersected every few miles by mountain streams as yet unpolluted by the filth and garbage of more thickly settled communities. Its general character is treeless save along the valleys of these streams, which are fringed by the willow and cottonwood, and on the sides and bases of the mountains. To the outside world this is known as Canada's grazing country, whence England will draw a large part of its future beef supply. As a sort of corollary to this, it has also been known in a general way that it was reputed to have a milder climate than the rest of the Northwest Territories. To most of you the following description will be not only interesting but necessary to a proper understanding of what follows. It is taken from an admirable paper by Mr. C. C. McCaul, of Letheridge, published in the August number of the *American Meteorological Review*. After noticing that winter only really sets in about the middle of December, he goes on to say:

It is characterized by a maximum of bright, still, cloudless days, a scanty snow fall, and frequent and prolonged breaks of warm weather, heralded by the Chinook wind, of which more hereafter. Occasionally a bad snow storm will cover the prairie and hill to a depth of 18 or 20 inches. This, however, is very exceptional. The winter generally breaks up in February by a grand blow from the west, followed by a period of from one to three weeks of warm, bright weather, which may fairly be called the beginning of spring. Spring, here as elsewhere, is the most variable and capricious season of the year. On the whole it may, perhaps, be described as cold and damp, with frequent rainfalls, varied by bursts of the most gloriously bright warm weather, lasting sometimes a fortnight or three weeks.

May is generally fine, warm and bright; June

and the earlier part of July rainy; the remainder of July, August, September, October, and generally November, warm and very dry. The summer, July to September, is characterized by hot days and cool nights, with very little rain, but the warm, lazy days of autumn, often lasting well into December, are the glory of the year.

The grand characteristic of the climate as a whole, that on which the *weather* hinges, is the Chinook wind. It blows from west to southwest, in varying degrees of strength, from the gentle breeze that just tosses the heads of the daisies and sunflowers, to the howling gale that carries off contributions of chimneys, barrels, shingles, hats, and miscellaneous rubbish to our neighbors in Assinaboia. In winter, the wind is distinctly warm; in summer not so distinctly cool. Its approach is heralded by the massing of dark cumulus clouds about the mountain tops, and a distant wailing and rumbling from the passes and gorges. Its effect in winter is little short of miraculous. When a *real* Chinook blows, the thermometer often rises in a few hours from 20° below to 40° above zero; the snow, which in the morning may have been a foot deep, disappears before night; everything is dripping; but before another night falls all the water is lapped up by the thirsty wind, and the prairie is so dry that a horse's hoofs hardly make an impression upon it as you take your first welcome canter, after a prolonged and tedious spell of "settin' round the stove."

It may be added to this that the elevation above sea level of the plains here varies from 2,700 feet at Letheridge to 4,500 feet at the entrance of the Crow's Nest Pass, which may be taken as the base of the mountains proper.

The winter and early spring are characterized by the coughs and colds incident to these seasons in almost any country. Summer is very healthy, and in autumn there are occasional cases of malarial fever of a remittent type, of which more hereafter.

Rheumatism is remarkably rare when one considers the sudden changes of temperature that often occur and the fact that most of the male population have led lives of the greatest exposure. When it *does* occur, it is almost always in the subacute or chronic form. Affections of the lungs are also very infrequent.

Summer disorders are almost unknown, a fact which must be attributed partly to the sparseness of population, but which is largely due, in my opinion, to the cool nights. About nervous affections I am hardly in a position to speak, but I judge that the rarefied air and the sometimes high winds would not be beneficial. During the past four years I have had three cases of paralysis—hemiplegia, occurring in patients otherwise perfectly healthy, cowboys in the prime and vigor of manhood, who have had no specific disease and were quite temperate, and whose family history the most careful inquiry found irreproachable. These cases were and are a puzzle to me, and I can imagine no cause but excessive riding.

I have alluded to the existence of an endemic malarial fever occurring principally in the fall. This is general throughout the territories, and has given rise to much comment and some difference of opinion among medical men. Its character is variously modified by the season, climate, soil and immediate surroundings of the locality in which it is present. It has been called remittent, intermittent, malarial, typho-malarial, and typhoid according as a certain set of symptoms predominated, and is known throughout all the West by laymen as "mountain fever." I have seen this fever at its highest, characterized by a chill and symptoms of a heavy cold, and broken up at once by free diaphoresis and a dose of quinine. On the other hand, I have attended cases in which all treatment was of no avail, cases badly affected by environment, that would go on from bad to worse until they would sink into the typhoid state—too often only the beginning of the end. Between these extremes all grades of severity are met with—their most general characteristic being, however, their atypical character. Routine treatment is therefore impossible except, perhaps, at the beginning, when I make it a rule to relieve the bowels by a calomel purge, promote free diaphoresis by pulv. ipecac co. or antipyrin, sometimes a combination of the two, and give two or three large doses of quinine. Subsequent treatment on general principles.

I have alluded to the different names by which this fever has been called and the consequent confusion. The cause of this is the tendency to regard it as a distinct typical disease, *which it is not.* The cause may be the same (no one, I believe, has ever questioned its malarial nature); but the variations in the course, symptoms and severity are important enough to entitle them to be called almost distinct types. These variations are due to locality, to the season, to different conditions of soil, climate, atmospheric moisture, etc., and to the individual. Another cause of the confusion has been the occasional occurrence of typhoid fever and the incautious use of the unfortunate term "typho-malarial." I say unfortunate because I believe that from the time of its coinage in 1861–2, it has never ceased to be a cloak for uncertainty, an unknown quantity in statistics, and an added difficulty to the struggling and inexperienced practitioner. It would be a good thing, in my opinion, if it were expunged from the nomenclature of disease; for, notwithstanding the care that was exercised in its definition by the U. S. Commission, wherein it was distinctly pointed out that it was "not a specific or distinct type of disease, but a term conveniently applied to the compound forms of fever which result from the combined influences of the causes of the malari-

rious fevers and typhoid fever," *there has* been a tendency to elevate it into a distinct type of disease. In the Northwest, while I have often seen severe cases of malarial remittent falling into the typhoid state and cases of typhoid masked at first by malaria; while I confess I have been sometimes at a loss at first to classify my case, I can hardly recall an instance in which waiting a few days did not clear up the diagnosis.

In 1886 I made an attempt to have collected detailed reports of all cases of fever occurring throughout the Northwest, so that the special features of each district might become better known. This attempt was frustrated through ignorance or misapprehension of my motive. It is a matter of regret to me that my suggestions were not adopted, for I am not one of those who believe that we have reached the sum possible of attainable knowledge with regard to malaria. We owe much to the researches of Thomanasi, Crudeli and Klebs, Laveran, Osler and Carter, in tracing out the life history in the blood of the malarial plasmoduino. But I believe the future has still something to unfold to us of its nature, mode of action outside of, and entrance into the human system. And I believe we have yet much to learn of the relations between the paludal and typhoid poisons. I find it difficult to believe the story of the statistics which tells us that typhoid fever pure and simple is three, four and five times more fatal than the same fever complicated with malaria, and I believe that more care in the diagnosis, which is now rendered somewhat easier by the application of Ehrlich's test; more thoroughness in the recording of cases, and more attention to etiology, will help us to clear up these doubtful points which few will question are stumbling-blocks in our path.

I trust that I have not been misunderstood—that while remarking on this fever at greater length, perhaps, than its importance warrants, I have not led you to the belief that it is a constant menace to life and health in Southern Alberta. I should be sorry to have made this impression, which would be an entirely false one. Some years the country is entirely free from fever; and generally it is mild and readily amenable to treatment. And severe cases will no doubt become rarer when greater care is exercised in personal and domestic sanitation.

I believe I have now said the worst that can be said of the climate of Southern Alberta, and I consider that in doing so I have earned the right to dwell briefly on what appears to me its distinguishing characteristic. I allude to its freedom from diseases of the lungs and its value as a resort or place of living for phthisical patients. I have already spoken of the rarity of pneumonia and other lung affections. I know of two cases of phthisis occurring in the country—one of acute tuberculosis strongly hereditary, and which proved fatal, and another of fibroid, the cause of which I believe to be the fine dust of the corral acting in the same manner as stone mason's and knife grinder's disease. This latter steadily improved on ceasing work and is now almost well.

On the other hand, I have known of a great many cases of incipient phthisis that have come to Alberta, and in some the disease has been arrested and in others the sufferer restored to perfect health. These facts will not appear strange when the prevailing conditions are considered; for, according to the latest consensus of opinion among climatologists, the climatic treatment of phthisis requires:

1. A dry aseptic atmosphere.
2. A dry soil.
3. The greatest possible number of clear, sunshiny days during which the invalid can exercise in the open air.
4. A certain amount or degree of elevation above sea level. Equability of temperature within certain limits is not now considered necessary.

I believe I may assert without danger of contradiction that Southern Alberta possesses all these requisites in the most eminent degree. The dryness of the atmosphere is insured by the character of the country, a great grassy, undulating, treeless plain, elevated from 2,000 to 5,000 feet above sea level and distant several hundreds of miles from any considerable body of water. Accurate meteorological data are wanting, but it is sufficient to say that Alberta is not different from that whole strip of country lying at the eastern base of the continental watershed, and which the absence of a sufficient rainfall has caused to be devoted principally to the raising of stock. This dryness of the air, combined with its elevation, almost necessarily renders it aseptic in a wonderful degree.

Elevation is not now considered an essential feature in the climatic treatment of phthisis. The altitude theory, which Miguel did so much to bring into favor and which was so great an advance on the indiscriminate employment of places like Madeira and Havana—places where warmth and equability of temperature and a certain degree of moisture were prevailing features—is now slowly going out of fashion. But it is doubtful if even the immense power of fashion—which, it is to be deplored, is almost as great in medicine as in millinery—will ever be able to seriously affect in the medical mind the value of elevation. The reason it is not so much considered now is that it was found that the curative properties were the dryness and purity of the air, and not necessarily the elevation. But it is difficult, almost impossible, to find a dry aseptic atmosphere[1] without the elevation being near sea level, and for this reason, if for no other, patients in search of a climate will still throng to the elevated regions. Besides, the

[1] Excepting Aiken, Georgia.

other physiological effects of elevation; the increased respiratory activity and expansion of the lungs and chest walls, the consequent increased nutrition, the cool nights, almost compelling sound and refreshing sleep, are features of no little value in the altitude treatment. As before mentioned, the elevation in Southern Alberta varies from 2,000 to 5,000 feet, and the patient can therefore choose the locality which seems to suit best his particular case.

Laennec, Bowditch, Buchanan and others having made it very clear that soil moisture is one of the chief causes of phthisis, a dry soil must be considered a necessity for any place putting forth claims to be regarded as a resort or place of living for consumptives. While I am not able to give the geological formation of Southern Alberta, I can assert without fear of contradiction that its soil must be regarded as preëminently a dry one.

Perhaps a more important point than any of the foregoing—certainly a most necessary one—is the number of days during which patients can take exercise in the open air. Here the want of meteorological observations is again severely felt, but from a private record kept during the five years ending December, 1888, I am able to deduce the following: The number of days which are recorded as overcast, raining and snowing is respectively 51, 49, 56, 53, 44, being an average of a fraction over 50, all the rest being noted as fine. Over 50 per cent. of these (fifty) are simply overcast, so it is fairly presumable that in the large majority of them, confinement to the house would be unnecessary. These observations, moreover, were taken very close to the mountains, where local storms are more prevalent than on the plains.

As to the class of cases for which Southern Alberta is suitable I am content to take Dr. Knight's selection, which is, I believe, approved by the great balance of authority on the subject. It comprises:

1. Those presenting the earliest physical signs of tuberculosis of the apex, who have as yet shown little if any general disturbance from the disease, and who complain only of morning cough and expectoration. As Dr. Knight very truly remarks, the prognosis in this class has been changed from very bad to very good by the improved ideas of treatment.

2. Hæmorrhagic cases without marked febrile reaction or much physical evidence of disease.

3. Certain cases of "fibroid" or "interstitial" pneumonia.

4. Patients recovering from acute pleurisy or pneumonia in whom the irruption of tubercle is dreaded.

For these classes of cases, Southern Alberta offers inducements hardly excelled by any place on the continent. I trust I have already satisfied you that the necessary climatic conditions are present: the dry aseptic atmosphere, the dry soil, the clear sunshiny days and the necessary elevation. There are one or two other points which I feel compelled to mention. One is that seekers after health are not obliged to remain for a few months only, and then go away again on the approach of winter or summer. Another is that, being a stock-raising country, it is easily possible to spend almost all one's time in the saddle. It was Sydenham who said that "unlimited horseback exercise is almost as good a cure for phthisis as quinine for ague." Another is that Alberta is in Canada, for why should Canadian physicians send their patients to Colorado when they have a climate equally as good within the confines of their own Dominion?

The general conditions of life are those of any new and growing country. Many of the pleasures of the East have to be dispensed with, but to most people, the bright sunny skies, the pure, bracing, intoxicating air, the exhilarating freedom of outdoor life and the unrivaled scenery of Alberta, will amply compensate for the artificial pleasures they are obliged to forego.

MEDICAL PROGRESS.

JABORANDI AS A PARTURIFACIENT.— Under this caption DR. N. P. MOSS reports a few cases (*N. O. Med. and Surg. Journ.*) in which jaborandi seemed to expedite labor, and his explanation of the *modus operandi* of the drug is unsatisfactory, as he seems to attribute it merely to its diaphoretic properties. His cases are also not numerous enough to serve as a basis for accurate deductions. Pilocarpin has been proven beyond doubt to possess a powerful action upon the uterus, and it has been employed to a considerable extent as an abortifacient. Professor Schauta, of Prague, has employed pilocarpin in more than forty cases as a means of strengthening labor pains. Injected subcutaneously he has found it active in 2 per cent. solution, although he has also used it in 3 or 4 per cent. solutions. Schauta went so far as to measure the effects of his doses by means of the manometer, and reached the conclusion that the influence of pilocarpin upon the uterus is a very powerful one, although it varies greatly according to individual susceptibility. In 1881 Van der Mey made experiments upon pregnant rabbits from which he obtained similar results. Gigollet has reported the case of a woman in whom premature labor was twice induced by the administration of pilocarpin, three injections at intervals of four hours having proved sufficient. Prof. Schauta gives the following rules for the administration of pilocarpin: After careful examination of the organs of respiration and circulation I would administer on the first day, if necessary,

as many as three injections of a 2 per cent. solution. If by the second day no contractions had supervened, I would use not more than two injections of a 3 per cent. solution; and finally, on the third day one or two injections of a 4 per cent. solution, employing always the muriate of pilocarpin. If I obtained no action by the fifth day I would resort to other measures. It would be absurd to abandon the use of muriate of pilocarpin, which has proved itself such an excellent ecbolic remedy in some cases, simply because it has not been found active in all cases when used in a 2 per cent. solution.

ABDOMINAL ANEURISM.—DR. WM. F. DREWRY, of Petersburg, Va., reports the following case: The patient, a negro æt. 60 years, was admitted into the Central Lunatic Asylum of Virginia on March 15, 1889. An aneurism of the upper third of the abdominal aorta was easily diagnosticated. Iodide of potassium, acetate of lead, anodyne embrocations, etc., were prescribed. On May 17 the patient died while asleep. An autopsy revealed the following conditions: In the upper half of the abdominal aorta, in the vicinity of and involving the orifice of the cœliac axis, and arising from the anterior face of the aorta, a false sacculated aneurism was found, with a mean diameter of 6 inches. It was intimately adherent to the adjacent tissues and encroached somewhat upon the spinal column. The sac had ruptured, perforating the diaphragm, and the contents had escaped into the left pleura. The reporter refers to the following statistics: Of 551 cases of aneurism of the aorta tabulated by Crips, only 59 were abdominal. Of 880 cases collected by Sibson only 177 occurred in the abdominal portion, and of this number 131 were located at or near the cœliac axis. Of 103 cases of abdominal aneurism collected by Lebert only 3 occurred at or near the bifurcation. Biggs, of New York, has recently reported 33 cases of aneurism of the aorta, only 4 of which were in the abdominal pylorus. Regarding the termination of abdominal aneurisms Sibson says: Seventy-seven per cent. rupture—28.5 per cent. into the peritoneal cavity; 22 per cent. into the subperitoneal tissue in the left hypochondriac region. — *Virginia Medical Monthly*, July, 1889.

PEPTONURIA IN PREGNANCY. By DR. WILLIAM FISCHEL.—In my work on puerperal peptonuria, I reported casually the occurrence of peptone in the urine of pregnant women. I wish to add that the pregnant women referred to were kept under observation up to the time of their confinement and even beyond, and that they remained healthy and especially were free from skin eruptions and syphilides. They all bore healthy living children. Inasmuch as I found peptone in one-fourth of the urine examined, I cannot at all agree with Dr. Koettnitz (*Deut. Med. Woch.*, 1888, p. 613), who, as the result of his observations, reported that the peptonuria of pregnancy is followed by death and maceration of the fœtus. Peptonuria certainly does occur in cases where the fœtus does not die. I cannot say whether Koettnitz's negative results of examination depend upon the reaction adopted by him, or whether it was a matter of chance that he always found the urine free from peptone. The positive results which I obtained by careful analyses according to approved methods, in Prof. Huppert's laboratory, cannot be set aside, whether they appear plausible or not.

I also wish to direct attention to the fact that the conditions explained by Dr. Koettnitz, under which alone he conceives the peptonuria of pregnancy possible, would be explained by me in the same manner. But it must be remembered that the pains of pregnancy do not occur merely at the end of gestation, as Dr. Koettnitz says, but during the entire period thereof, and accordingly, on the basis of this hypothesis, peptonuria may occur at any time during pregnancy. That this hypothesis is not proven, appears from my former reports; as does also the fact that it is not the only conceivable one.—*Centralbl. für Gyn.*

A CASE OF FŒTUS PAPYRACEUS.—DR. E. W. MULLIGAN, of Rochester, N. Y., reports a case of this kind. He first saw his patient in November, 1888, when she was apparently having labor pains. She considered herself to be in the sixth month of pregnancy, although the large size of the abdomen seemed to indicate a more advanced pregnancy. Patient was not seen again for three months, when she was found in labor; the abdomen, curiously enough, was much smaller than it was three months before. Patient soon gave birth to a child weighing 10 lbs. which was immediately followed by the expulsion of a dead fœtus. This was flattened out and seemed to correspond to the sixth month of fœtal development. The cord was slightly attached to the border of the placenta. The woman now said that soon after the physician's previous visit the membranes broke and almost a *pailful* of clear fluid escaped, after which the pains subsided and she went about her duties as usual.

Double Vagina and Uterus.—Dr. Mulligan also reports for Dr. Jonas Jones the case of a well developed woman 25 years old, married two years without children. External genitals normal. There are two vaginæ situated side by side, the opening of the left one being a little above and to the right in relation to the other. They appear to be about the same size, but the right one, having been used, received the speculum more readily. Each uterus is 2½ inches in depth, the os being normal in each. The patient has had two miscarriages in the past three years, miscarrying each time when two months pregnant.—*Buffalo Med. and Surg. Journal*, August, 1889.

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SATURDAY, SEPTEMBER 14, 1889.

GRAILEY HEWITT[1] ON THE SEVERE VOMITING OF PREGNANCY.

DR. GRAILEY HEWITT'S most recent communication "On the Severe Vomiting of Pregnancy," read at the last meeting of the American Gynecological Society, merited critical attention and adequate discussion. But it is a somewhat remarkable fact that neither the presence of the distinguished author himself, nor the valuable nature of his essay, was sufficient to draw out lively debate. The explanation, however, of this apparent slight put upon a foreigner is not hard to find. The surgical aspects of obstetrics and the diseases of women received the attention that ought to have been devoted to equally weighty matters of internal medicine.

Dr. Hewitt's paper relates chiefly to etiology—undoubtedly the topic of greatest import. He writes: "The conclusion suggested is substantially in agreement with the opinion of Desormeaux, expressed some years ago, that the vomiting is due to interference with expansion of the uterus. The cases related in this paper appear to show that there are two factors which principally contribute to this interference with uterine expansion: 1. Incarceration of the uterus in the pelvis associated with flexion or version; and 2. Undue hardness and rigidity of the tissues of the cervix and around the os internum. Also that these two factors are in most cases associated."

Those familiar with the earlier utterances of Dr. Hewitt will recognize a material change of opinion in this most recent expression. Flexions and versions, in general, and anteflexions in particular, no longer exercise dominant power in determining hyperemesis. But this amended hypothesis is no more equal to the explanation of all recorded cases of the uncontrollable vomiting of pregnancy, than were its less pretentious antecedents.

In the limited space at our command, it is impossible to enter into a detailed criticism of Dr. Hewitt's analysis and elaborate classification of recorded cases. In passing, however, it may be remarked that in the construction of his premises, he has assumed the question at issue, while he treats with a certain insular arrogance the opinions of other observers. Indeed, his treatment of the entire subject can hardly be regarded as candid.

In a number of cases, quoted in his paper, and in a still larger number of examples described in the literature of the subject, the vomiting and prostration either appeared for the first time, or became marked, after the uterus had passed upward out of the pelvis into the abdominal cavity. In other words, the symptoms presented themselves at a time when the operation of the factors mentioned by Dr. Hewitt must have been physically impossible.

There are scarcely six cases of incarceration of the ante-flexed pregnant uterus on record. Then the symptoms of incarceration of the pregnant uterus, whether it be bent or turned forward or backward, or fixed by exudates and the like, make up a clinical picture essentially different from that we see in the uncontrollable vomiting of pregnancy. Incarceration causes pronounced local disorders, in connection with the function, of the bladder and rectum, that are more or less acute. These disturbances commonly attract the patient's attention to her own condition. When vomiting occurs it is usually the vomiting of ileus, not of pregnancy. The clinical characters of the vomiting from incarceration of the pregnant uterus are not identical with the appearances of hyperemesis gravidarum. The former is a subordinate phenomenon, appears late, and lasts necessarily but a brief period. The latter rules the situation from the first, constitutes the complete clinical picture of the disease, and runs a chronic course.

Dr. Hewitt does not mention a considerable

[1] Transactions of the American Gynecological Society, Vol. xiii, 1888. British Medical Journal, 1889.

class of cases, in which the determining cause of the vomiting is found in some morbid state of the gastric mucous membrane, often existent before conception. It is well-known that pregnancy not only often exaggerates physiological processes into morbid activity, but also that it seriously aggravates conditions of little moment in the non-gravid woman. The adjuvant cause of hyperemesis gravidarum is not uncommonly discovered in latent chronic gastritis, or in acute gastritis arising during pregnancy. Gastric ulcer is of more common occurrence and attended with greater significance in pregnant women than is generally believed.

The causation of the uncontrollable vomiting of pregnancy constitutes a most intricate problem, and while etiological research has cleared up some obscurities, there still remain cases in which the autopsy fails to disclose any adequate objective changes. Under such circumstances is it not better to admit ignorance, rather than to force a favorite hypothesis?

MEDICAL ORGANIZATION.

At a recent session of the California State Medical Society, a resolution was adopted declaring that continuous membership in a local society, where one exists, is essential for membership in the State society. In pursuance of this action, the Sacramento Society, regarding this as an important step in the maintenance of the local organization, adopted similar action.

We are glad to note this as a real advance in the proper direction. In a number of States, the State society only exists as the parent head of the county or other local societies. This we believe to be the only proper means to secure the organization of the profession and to control those who are inclined to irregularities. In the early days of medical societies, especially in the new States, it was not always possible to wait on the local bodies prior to the formation of the State body. In fact, in some instances it was necessary to combine the members of the profession in a State medical society at the outset, and by means of organizing committees to cause the local societies to radiate from it as a centre.

But medical organizations have now become so well known and their workings so well understood that this plan is no longer needed. Every county should have its own society, or where the members of the profession are extremely few in number, let them join with one or more adjoining counties and form a district society, which should annually send its delegates to the State society and to the American Medical Association. By the amendment to the laws of this latter body, providing for "Members by Application," every regular physician has an opportunity to become a full member of the general body. This should be embraced by all and the admission of "Members by Invitation" should be of rare occurrence. This latter privilege should only be accorded to distinguished strangers, and never to those who are able to join by application, or who do not feel sufficient interest in their local society to aid it by their money and influence.

Although the next session of the American Medical Association will not take place until May of 1890, yet it is none too early for the profession of the South and West, in whose midst that session is to be held, to take steps toward the thorough organization of every portion. The session at Nashville should be one of the grandest gatherings ever assembled. As the securing of rates on the railroads will on that occasion be solely confided to the hands of one person, and as he is the one to whom application is usually made by those who desire to obtain these reductions, we feel confident that on this occasion it will, if possible, be secured in abundance of time for all to avail themselves of the reduction.

The organization of a medical society need not be a difficult task. In districts not yet provided for, let the physicians assemble at the call of one of their number. There is always a central figure around whom the rest will cluster; let him issue a call and see to it that no worthy member is omitted. In medicine there is no creed or politics. Every physician should be admitted to the local society against whom there is no charge of irregular conduct. Let the assemblage adopt the simplest laws for its government, place the fees of whatever kind as low as will be sufficient to provide for the maintenance of the society, select the best members for officers, particularly for president and secretary, for upon these two officers the whole usefulness of the body will depend. This done, let the society apply to the State Medical Society for recognition by representation, as upon such recognition de-

pends its right to send delegates to the American Medical Association. Such an organization will continue as an integral part of the medical fraternity with but little effort on the part of its members.

To make the sessions useful and attractive, it would be well to have a committee on essays, whose duty will be to provide for each meeting some literary entertainment in the form of an essay, clinical report, or similar matter, and the hour of meeting will soon come to be regarded as a pleasure and its coming anticipated by all.

In many such meetings we have known them to be looked forward to as an opportunity to renew friendly greetings, to make new acquaintances, as well as to learn what was new in the profession.

In a very large experience of this kind, we have known the warmest friendships to have been formed, mutual misunderstandings explained, a feeling of sociability to be established, which has done much to cause the entire profession of the locality to gain the respect of the community. In conclusion, let us urge these points upon the profession everywhere; organize, and where societies already exist, make them stronger, bring in every one who is eligible; thus you will elevate the profession at home, in your State, and in the whole country.

EDITORIAL NOTES.

HOME.

TYPHOID FEVER IN INDIANA.—Typhoid fever prevails at Dundee and Connorsville. It is of a malignant type and is spreading rapidly.

A PECULIAR CATTLE DISEASE.—Cattle are dying in the vicinity of Dallas City, Hancock county, Ill., of a strange disease. They become stiff in the hindquarters and suddenly drop to the ground, dying in great agony.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, which concluded its sessions in Toronto last week, decided to hold its next meeting at Indianapolis in August, 1890.

WOMAN'S MEDICAL COLLEGE OF CHICAGO.—The Woman's Medical College celebrated the opening of its twentieth year of instruction on the 3d inst. at the College building on South Lincoln street. Dr. William H. Byford, President, and Professor Mary Mixer made brief addresses. Already over one hundred students have been enrolled for the present year, a very large increase over the former attendance.

THE AMERICAN SOCIETY OF MICROSCOPISTS held their twelfth annual meeting at Buffalo during the third week in August. There was a large attendance of members and the following officers were elected: President, George E. Fell, M.D., Buffalo; Vice-Presidents, W. H. Seaman, Washington, D. C., and F. W. Kuhne, Fort Wayne, Ind.; Treasurer (to fill the unexpired term of Dr. Mosgrove, resigned), C. C. Mellor, Pittsburgh, Pa.; Executive Committee, W. P. Manton, Detroit, Mich.; Dr. Frank L. James, St. Louis; W. H. Walmsley, Philadelphia, Pa. The time and place of next meeting is not yet announced.

THE ASSOCIATION OF AMERICAN PHYSICIANS, as previously announced, will hold their Fourth Annual Meeting at Washington on the 18th, 19th and 20th insts., under the presidency of Dr. Francis Minot, of Boston. Papers will be read on the following subjects: "The Early Stage of General Paralysis," by Dr. C. F. Folsom, of Boston; "Tetany," by Dr. James Stewart, of Montreal; "Tetany and a New Theory of its Pathology," by Dr. John T. Carpenter, of Pottsville; "Thrombosis of the Cerebral Sinuses and Veins," by Dr. A. B. Ball, of New York; "Chylous Effusions into Serous Cavities," by Dr. S. C. Busey, of Washington; "Substitutes for Opium in Chronic Diseases," by Dr. J. F. A. Adams, of Pittsfield; "Remarkable Case of Slow Pulse," by Dr. D. W. Prentiss, of Washington; Discussion on the Relation between Chlorosis, Simple Anæmia, and Pernicious Anæmia, including Leucocythæmia and Hodgkins' Disease. Referee, Dr. Frederick P. Henry, of Philadelphia, Co-Referee, Dr. F. Forcheimer, of Cincinnati; "Primary Cancer of the Duodenum," by Dr. E. N. Whittier, of Boston; "Primary Cancer of the Gall Bladder and Ducts," by Dr. John H. Musser, of Philadelphia; "Gastric Neurasthenia," by Dr. G. M. Garland, of Boston; "Specimens from Two Cases of Cretinism, by Dr. W. F. Whitney, of Boston; "The Anatomical and Physiological Relations of Lesions of the Heart and Kidneys," by Dr. H. F. Formad, of Philadelphia; "The Contagium of Diphtheria," by Dr. P. Gervais

Robinson, of St. Louis; "A Supplementary Inquiry into the Frequency with which Lead is Found in the Urine," by Dr. James J. Putnam, of Boston; Discussion on the Relations of Rheumatism to Rheumatoid Arthritis. Referee, Dr. William Osler, of Baltimore, Co-Referee, Dr. Morris Longstreth, of Philadelphia; "How Far may a Cow be Tuberculous before the Milk Becomes Dangerous as a Food Supply?" by Dr. Harold C. Ernst, of Jamaica Plain; "The Bacillus Tuberculosis," by Dr. J. T. Whittaker, of Cincinnati; "Hot Air Inhalations in Tuberculoses," by Dr. E. L. Trudeau, of Saranac Lake.

MORE EXPERIENCE WITH THE "ELIXIR OF LIFE."—Samuel C. Showalter, of Dayton, Ohio, aged 60, voluntarily submitted to injection of elixir of life three weeks ago, hoping for relief from rheumatism, and died on the 2d inst. from the effects of the treatment. Immediately after the injection was made his limbs began to swell and his whole system was permeated with blood poison.

THE DEATH-RATE IN CALIFORNIA.—The deaths registered in 81 town districts of California, with a population of 790,700, corresponded, for the month of July, to an annual rate of 13.33 per mil. The average annual death-rate from all causes occurring in the ten largest cities and towns, with a population of 620,000, was 12.57 per mil.

METEOROLOGICAL REPORTS from San Diego and San Francisco for June, 1889, furnish the following data: Mean temp., San Diego, 64°; San Francisco, 58.1°. Highest temp., San Diego, 72°; San Francisco, 75°. Lowest temp., San Diego, 56°; San Francisco, 52°. Mean daily range of temp., San Diego, 10.5°; San Francisco, 12.1°. Total rainfall, San Diego, 0.10; San Francisco, 0.03.

THE USE OF MORPHINE IN DELIRIUM TREMENS.—Another one of those cases (unfortunately by no means rare) where a patient suffering from delirium tremens dies after the administration of moderate doses of morphine is reported in the *Occidental Medical Times*. In this instance, as often happens, the press dispatches reported that death occurred from an overdose of morphine administered by the physician. The autopsy showed no evidence of morphine poisoning, but did reveal a clot in the left lateral ventricle. In view of the fact that such reports are often recorded and that opium is an unsafe remedy in cases of threatened apoplexy, the physician certainly acts the part of prudence when he withholds the use of morphine in delirium tremens and trusts to more reliable sedatives.

LORETA'S OPERATION FOR STRICTURE OF THE PYLORUS.—Dr. T. W. Huntington, of California, reports a case where he performed Loreta's operation for stricture of the pylorus in a patient who had suffered from gastric derangement for three years. After dilation of the constricted portion the former symptoms disappeared, and five weeks after the operation the patient had resumed his usual diet and is pronounced practically well.

METAL REMOVED FROM THE EYEBALL BY AN ELECTRO-MAGNET.—Dr. W. E. Briggs, of Sacramento, reports, in the *Occidental Medical Times*, nine cases of operation for removal of metal from the eyeball by means of the electro-magnet. There were two successful cases of removal from the anterior chamber, three of removal from the vitreous, and one of removal from the ciliary regions. In two cases of failure, enucleation of the eyeball followed, and in one case of failure the patient refused enucleation and passed from observation. Dr. Briggs summarizes his conclusions as follows: The electro-magnet is generally a safer instrument for the extraction of fragments of steel from the anterior chamber, from the iris, or from the anterior portion of the lens, than the forceps. It is practically our only resource when the steel has penetrated the vitreous chamber. It is safe to retain, quite extensively, injured eyes, if the offending body be promptly removed and thorough asepsis observed.

AN ARMY MEDICAL BOARD will be convened in New York City, New York, October 1, 1889, for the examination of such persons as may be properly invited to present themselves before it as candidates for appointment in the Medical Corps of the Army. Application for invitation should be addressed to the Secretary of War, stating date and place of birth; place and State of permanent residence, and accompanied by certificates, based on personal acquaintance, from at least two persons of repute, as to citizenship, character, and moral habits; testimonials as to professional standing, from the professors of the medical col-

lege from which the applicant graduated, are also desirable. The candidate must be between 21 and 28 years of age, and a graduate from a regular medical college, evidence of which, his diploma, must be submitted to the Board. Further information regarding the examinations and their nature may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

FOREIGN.

TO INSPECT DRAINAGE SYSTEMS.—Ellis Clark, President of the Association of Municipal and Sanitary Engineers of England, will sail on the Servia on the 21st inst. for the purpose of acquainting himself with the methods adopted in large cities in the United States for the disposal of sewage and refuse, and also with internal sanitary arrangements.

COLLECTIVE INVESTIGATION.—It is to be regretted that the Collective Investigation Committee of the British Medical Asssciation, from whom so much was expected, feels obliged to recommend the abandonment of the work of collective investigation. The Committee reports that the returns received upon the subjects which have been taken up have been so few that they do not feel justified in continuing the inquiries further or in entering upon fresh ones.

THE TERCENTENNIAL OF THE MICROSCOPE.—Preparations are being made in several German towns to celebrate next year the three hundredth anniversary of the invention of the microscope. Zacharias Janssen, of Madgeburg, is credited with having constructed the first microscope in 1590.

DR. LUSTGARTEN.—It is announced that Dr. Lustgarten, of Vienna, is about to remove permanently to this country. Dr. Lustgarten will be remembered especially by reason of his discovery in 1885 of the bacillus of syphilis. At the time his report was received with a great deal of incredulity, but it was not long in obtaining the recognition of the highest authorities. As Assistant to Prof. Kaposi (the successor of Hebra) Dr. Lustgarten became personally known to many of the American physicians who have visited Vienna within the last few years.

PROFS. BREISKY AND ULTZMANN.—The Vienna Medical Faculty has recently suffered severe losses in the death of Prof. Breisky, the distinguished obstetrician, and that of the no less eminent professor of urinary diseases, Prof. Ultzmann, both of whom were well known in this country for their valuable contributions to medical literature. Prof. Ultzmann, from his longer residence in Vienna, was particularly well known to us, and numbered his American pupils by the score. Those who were so fortunate as to have attended his admirable clinics at the Policlinic will long retain pleasant recollections of his skill as well as his kindly demeanor toward his patients.

AN INQUIRY INTO THE MANAGEMENT OF MEDICAL CHARITIES.—The following resolution will be moved at the next session of the British Medical Association: "That this meeting of the British Medical Association views with great pleasure the action of the Charity Organization Society of London in presenting a petition to the House of Lords praying for an inquiry into the management of the metropolitan medical charities, and earnestly hopes that the scope of the inquiry will be extended so as to include provincial hospitals and dispensaries, with the view of obtaining as complete information as is possible upon this important subject; that a copy of this resolution be forwarded to the Lord President of the Privy Council, and that he be requested to receive a deputation; that the Council be requested to appoint a special committee to deal with the question, and request the Charity Organization Society of England to form a similar committee to act in conjunction with it."

IN GREAT BRITAIN a new wing is about to be added to the Leeds Infirmary. Dr. Thomas King Chambers, honorary physician to the Prince of Wales and a member of the General Medical Council, is dead. An epidemic of typhus fever has been prevalent in the Marshalltown division of the Mitchelstown district, Ireland. Londoners have been alarmed over an alleged outbreak of typhoid fever in the West end. The Glasgow Town Council have been considering the necessity of making new arrangements for meat inspection, and have decided to place the inspection of meat in charge of the sanitary department, and have appointed a committee to consider what further legislation is necessary to secure the public against the sale of tuberculous and infected meat. At the recent quarterly meeting of the Royal College of Surgeons of England Mr. Jonathan Hutchinson was elected President, and Messrs. Bryant and Croft Vice-Presidents.

TOPICS OF THE WEEK.

THE HYGIENIC USES OF THE IMAGINATION.

In a recent editorial entitled "CONSIDERATE JUDGMENT," we endeavored to emphasize the necessity of basing conclusions upon well ascertained facts, and stated that only those theories which could be thus substantiated would be found enduring. But in the attainment of truth we are by no means debarred the full and free play of a well disciplined imagination; indeed, it often points the way to undiscovered truths; it is by no means infallible; its suggestions always need verification; but imaginations verified become with us accepted facts. Under the above heading, at the recent meeting of the British Medical Association, SIR JAMES CRICHTON BROWNE presented a very able address which is reported in the *British Medical Journal* of August 24, and from which we make the following abstract:

The cultivation of the imagination, then—and it can be cultivated and disciplined to agility and steadiness of action—is of high importance to us as medical men; for it can be serviceable to us in collecting materials, in solving difficult problems, and, by the analogies it suggests, in guiding us in our life-long search after truth. The precise character which medicine is happily assuming, as its several departments merge into the exact sciences, and which demands of its cultivators a physico-mathematical and chemical training of ever increasing stringency, does not in any degree abrogate the necessity for the employment of the imagination. On the physical side of medicine that still holds its own, and on its psychical side it is indispensable in dealing with phenomena that are beyond the province of physical and chemical research. Medical men and medical students, then, need not fear that they are altogether wasting their time when they turn aside now and then from their professional tasks to ramble for a little in the green pastures of literature, or climb the pinnacles of art. True, their imagination may be fully trained for its professional duty, as it is exercised, in conjunction with observation and judgment, in the scientific sphere; but it will be braced, invigorated, and have its resources multiplied, by recreating occasionally in its native air. Even if imaginative pursuits did not strengthen the hands of medical men in grappling with disease, or quicken their scientific vision, these would still be commendable, because of the refreshment they bring to jaded brains. To turn from the fatigue and anxieties of practice into realms where rivalry is no more and night bells never ring is to plunge into one of the most soothing and depurative of "tired Nature's" baths. Members of our profession are, I suspect, generally aware of this, and resort to imaginative literature, music, and art more than any other class of professional men, except, of course, artists and men of letters, and to an extent that is remarkable, considering the engrossing claims made on their time and the scant leisure they enjoy.

The contributions of medical men to the departments of imaginative work have been far from insignificant. At least four eminent members of our profession now living might be named who have found leisure, amidst absorbing occupation, so to use the pencil and brush as to gratify not only their private circles but the public, and a list of medical poets would be a long and goodly one, including such names as Akenside (the gifted singer of the pleasures of that imagination whose usefulness I am attempting to extol), Garth, Blackmore, Goldsmith, Smollet, Armstrong, Erasmus Darwin, Crabbe, Moir (better known as Delta, John Brown, whose *Rab and His Friends* is idyllic, and Oliver Wendell Holmes. Nay, even one or two of the greatest names in poetical literature might not improperly be added to such a list. Keats was apprenticed to a surgeon at Edmonton, and afterwards attended St. Thomas' Hospital. It has been argued, I am afraid not very convincingly, that Shakespeare's extensive medical knowledge proves him to have been engaged in the study of medicine during one or two of those years of his life that are unaccounted for, but it is indisputable that Dante was enrolled amongst the *medici è speziali* (leeches and druggists) of Florence, and that he attended their council meetings for several years. But it is not as producers but as consumers of poetry and imaginative literature that medical men derive from them their restorative influence; and as consumers they are, I feel sure, amongst the bookseller's best friends. Sydenham, when asked by Sir Richard Blackmore what course of study he would recommend for a medical student, replied, "Let him read *Don Quixote*, it is a very good book; I read it still." Connolly, the apostle of that non-restraint system to which we owe everything that is most excellent in the treatment of the insane in this country, and with which I trust professional opinion and public sentiment will permit no tampering—Connolly told me in his latter years that he took ever renewed delight in *Gulliver's Travels*. I know hard-working doctors in town and country who hold habitual converse with some of our great imaginative writers. Two of the most distinguished and busiest physicians of this day are, to my knowledge, inveterate novel readers. I have heard one of our great surgeons deliver an address betraying a deep study of the poetry of Keats; and another of our great surgeons, present at this meeting, told me recently that on his way to and from every serious operation he dips into Shelley.

But it may be objected that the imagination, if sometimes stimulating and restorative in its influence, is often morbid in its tendencies, and that its indulgence is to be guarded against by those who desire to possess well regulated minds. "No habit can be more opposed to a healthy condition of the mental powers," says Abercrombie, "than that which permits the mind to wander in a mere vision or waking dream from scene to scene, unrestrained by reason, probability or truth;" and the answer to Abercrombie is supplied by Tyndall, who says that those who have denounced the imagination because they have seen its disastrous effect on weak vessels, "might with equal justice point to exploded boilers as an argument against the use of steam." But the weak vessels wrecked by imagination are really fewer than is commonly supposed. Now and again some erratic genius, of highly strung nervous temperament, gives himself up to the pleasures of imagination till he becomes intox-

icated with them, and staggers over the boundary of sanity. Now and again an intensely imaginative child, like Jerome Cardan or Hartley Coleridge, so indulges in day dreams that his fancies grow into phantoms that haunt him; but I do not hesitate to say that for one case of insanity caused by excess of imagination, there are a dozen caused by the want of it. Apathetic dulness and torpor of mind are apt to deepen into dementia; and those entirely given up to "the care of this life and the deceitfulness of riches" are more likely to be choked by them than those who can surmount them, and breathe the free and ample air of æsthetical emotion. A vulgar error as to the nature of insanity has perhaps conduced to exaggeration as to the dangers of imagination. Visitors to asylums invariably arrive expecting to find growths of morbid invention and belief, wild, tangled, and luxuriant as a tropical forest, and leave much disappointed by the barrenness of the land, for the insane are the least imaginative of beings. At rare intervals a madman is encountered—a Blake or a Swedenborg—whom two intrepid doctors have certified, who dazzles all around him by the meteoric brilliancy of his conceptions; but, as a rule, the lunatic is as dull as a stone. He is the victim of a fixed idea, or his delusions pursue a treadmill round, or occur in groups so unvarying that, if you have ascertained one of them, you can predict all the rest. His mind is a blank or a blurred and unreadable page, or his fancies, if they come thick in the tumult of mania, are so disjointed or huddled together as to defy recognition. Idiocy is the absolute negation of imagination, and insanity undermines and destroys or enfeebles it more or less, and, when we try to drive out insanity, the first thing we do is to invoke imagination's aid, for moral treatment consists mainly in appeals to this faculty, and fully acknowledges its hygienic uses. The first recorded cure of melancholia was by the harp of David, and to-day in every lunatic hospital worth the name persistent efforts are being made by music, by pictures, by poetry and the drama to stimulate the imagination, and thus "cleanse the stuffed bosom of that perilous stuff that weighs upon the heart."

Imagination seems to have a trophic influence on the brain. When it is absent tardy growth goes on; when it is more or less in abeyance, weakness exists; when it is active, there is vigorous development; and the immediate effects of imagination in causing exhileration and preventing sleep when it is excessively indulged almost suggest that the states of the cortex which accompany it have some control over metabolic changes in the body. We now know that, besides alkaloids exercising a poisonous effect, which owe their formation to microbes, and are called ptomaines, there are others which are produced by the cells of the living organism themselves in breaking down albuminous matter, and which are called leucomaines. Now Bouchard has shown that the alkaloids of the latter kind formed during sleep have a stimulating action, so that, when they accumulate to a certain amount, they excite the nerve centres and cause awakening, while those formed during waking hours have a depressing action and tend to induce sleep. And it is just possible that in the formation of leucomaines of different classes, under varying conditions of the supreme nerve centres, a key may be found to the curious fact that certain emotional moods, after having persisted for a time, tend to induce their opposites—excitement, depression; appetite, disgust—and also to the influence of imagination, when very active, in causing exhileration and wakefulness. It is just possible that under such circumstances it may arrest the formation of those leucomaines, usually manufactured during waking hours, which are depressing and lead up to sleep, or so modify decomposition that other leucomaines of a stimulating character are produced. There can be no question that, in insanity, certain states of the highest nerve centres are accompanied by rapid disintegration of the tissues and emaciation, while in other states of these centres metabolism is reduced to a minimum, so that prolonged starvation may be sustained with comparatively little wasting.

But it is only an inordinate indulgence of the imagination that produces excitement and interferes with natural slumber; its reasonable and regulated use causing only a certain buoyancy of spirits with which a sense of soothing is associated. Imagination, indeed, legitimately used, combines to some extent the pleasurable effects of both morphine and caffeine, without any disagreeable after-consequences, such as headaches, despondency, or confusion of thought. On the one hand, it may heighten happiness, and on the other afford solace in suffering and sorrow. It may give zest to appetite and allay the pangs of hunger, brace to exertion, or lessen the sense of fatigue. It would not be wrong to speak of it, when rightly used, as a true physiological stimulant, and analgesic, capable in some degree of taking the place of those crude agents drawn from herbs and trees, with which in all quarters of the globe mankind has sought to mitigate the dulness or assuage the pains of life. Moreover, its massive pleasures have a distinctly sedative effect in connection with those petty but exasperating animosities and jealousies that are the thorns of social intercourse, and fret and fray fine-textured brains. Lifting us above the turmoils and worries of the moment and opening up wide and distant prospects, they promote altruistic feeling, lull to rest our wounded sensibilities, and allay feverish excitement.

SENILE CHANGES IN ARTERIES.

In discussing the nature of constitutional susceptibility to disease in his recent address at Leeds, DR. JOSEPH COATS, of Glasgow, makes reference to senile changes in arteries in the following language:

Turning to susceptibilities to disease, I believe that senile changes constitute a very important element in the commoner diseases of arteries. Atheroma of arteries and aneurysms, arising as these do for the most part from atheroma, are conditions in which we can distinctly trace the two elements in the causation which I alluded to at the outset of this address. These are diseases of middle life and old age, that is to say, senile changes in the arteries constitute the predisposing cause or susceptibility, but the determining cause is the impact of the blood on the wall of the artery. This is evident from the fact that atheroma is commonest where that impact is greatest,

namely in the aorta. It is not common in arteries of comparatively small calibre, but there are two situations in which it frequently occurs even in small vessels, and these are situations where the impact of the blood is apt to be greater than in other arteries of a similar size. The coronary arteries of the heart, coming off directly from the aorta, are exposed to a high blood-pressure, and they are very often atheromatous. The arteries of the brain also, coming off as the anterior and middle cerebral do from a large artery which passes up directly from the aorta, are presumably exposed to unusual blood-pressure, and they are very frequently affected with atheroma. Perhaps also the soft character of the brain substance, causing the arteries to be less supported than most others, may have to do with the frequency of atheroma here. In this disease, then, the changes of constitution in the arteries consequent on many years of activity induce a condition which renders the tissues of these vessels incapable of resisting, as before, the effects of the blood-pressure. This change of constitution we may infer to be a diminished vitality in the living structures forming the walls of the vessels. That it is so is almost demonstrated by the fact that atheroma is often associated with a condition of the middle coat, which implies greatly diminished vitality, namely, calcification of the muscle cells of that coat. Before a living structure allows of the deposition of lime salts in it, it is already so much reduced in vitality as to be almost dead.

Now it is interesting to observe that these senile changes in the constitution of arteries are subject to very great variations in different individuals, and in like manner the occurrence of atheroma varies, both in the age at which it occurs and in its extent. This is of great importance when we consider what an important part this disease plays in causing death in old people. A large proportion of the deaths in the latter part of middle life and in old age are from hæmorrhage or softening of the brain, presenting itself in the various forms of apoplexy, paralysis and brain weakness. These conditions of the brain mostly depend on atheroma of the arteries, and so we may say that the tendency to death is greatly influenced by the occurrence or the premature occurrence of the senile changes which render the arteries susceptible to atheroma. The constitutional condition of the arteries as regards vitality of their tissues in advanced life exercises thus a very important influence on the duration of life. I may venture to say that the constitutional powers of the heart and of the arteries are the principal factors in determining longevity. The ability of the heart varies greatly in different individuals, and survival when attacked by an acute disease will largely depend on the power of the heart to resist the debilitating influence of the morbid agent. If a man passes through middle life and has escaped from acute diseases, or has survived them, then the condition of his arteries is probably the most important factor in determining his chances of life. It is thus that the local constitutional peculiarities of the vascular system influence the duration of life. These constitutional conditions, like others, are largely the subject of inheritance, which thus again is seen to determine local peculiarities.

KIND TREATMENT FOR THE CURE OF DEMENTIA.

During the past week the American Social Science Association has been in session at Saratoga. A good common sense paper on "Training Insane Women in Domestic Industry" was read by General Secretary Sanborn, who prefaced his remarks by saying that in the general interest now aroused by industrial education he had thought the success of Miss Alice R. Cooke, of Sandwich, Mass., author of the above paper, in restoring to industrious habits insane persons who had become idle through loss of mental power and the lack of mental direction, would be of value, and this paper was the result. Miss Cooke said she took three women from asylums where they had been five years or more, all of Irish extraction, the youngest being about 30 years of age, and the oldest about 60. All were suffering from dementia, characterized by melancholia and delusions. Her treatment was simply kindness with thoughtful care, and her success in restoring them to constant usefulness in household service was made the basis of an argument showing the desirability of placing the chronic and quiet insane in private families rather than in the noise and confusion of public hospitals, where their disease is aggravated by the quarrels and violent outbreaks of different classes of patients. She thought what she had accomplished with these middle-aged women could be done still more effectively with the younger ones and those of more vigorous bodily health. This was followed by a general discussion relative to the training of defective classes in labor.

SOCIETY PROCEEDINGS.

Medical Society of the District of Columbia.

Stated Meeting, February 20, 1889.

CHARLES E. HAGNER, M.D., PRESIDENT, IN THE CHAIR.

DR. I. BERMANN read a paper on

THE POSSIBILITY OF LATENT SYPHILIS CAUSING INFECTION.

(*Discussion Concluded from page 355.*)

DR. SMITH: All men and women who contract syphilis will lie about it. Unless Dr. Bermann could swear that this man did not contract the disease since his marriage and that this woman did not cohabit with anybody else, he could not help doubting infection from such a long latency. He then gave the history of a case where the woman told several stories and protested her innocence, and several years after she admitted that she had been indiscreet a number of times with several men. If Dr. Bermann could get the true history of his case he might find that there had been a little lying going on.

DR. THOMPSON: The question of infection through the semen is a very interesting one

Most syphilographers agree that infection must be through the fœtus. Could this man, at this length of time since primary infection, infect his wife? He thought not. There were secondary manifestations, and not tertiary, after eleven years latency, according to Dr. Bermann's diagnosis. He questioned the correctness of the diagnosis. He had not proved syphilis. The man could not infect his wife from glandular enlargements. The diagnosis was false. He did not believe this man had syphilis. He had seen a young man to-day who had an eruption resembling the secondary manifestations of syphilis, with glandular enlargements; but there was no evidence of local lesions, and he declared that he had never had intercourse with a woman. Five years ago he had treated a man for the mildest form of syphilis; he afterward traveled and returned to perfect health. He came to him a few days ago with a suppurating gland, similar to a venereal bubo, and still he declares that he has not been exposed. According to the theory advanced to-night this man could infect his wife and children. Dr. Thompson did not believe that this young man could give his wife syphilis by copulation, or could infect his children through his wife.

DR. BERMANN: The cases cited by Dr. Thompson and his own are not at all alike, and, therefore, not comparable. Dr. Bermann was certain of his diagnosis. He could make as good a diagnosis as any one, and when he did diagnosticate syphilis he was as competent to do so as any one in this country or anywhere else. He had seen enough cases of syphilis to be sure of it when he made his diagnosis; and when he said a man had syphilis he felt sure it could be relied upon.

DR. THOMPSON: The cases were similar. Both had syphilis and were said to be well, but years afterwards developed symptoms resembling the secondary manifestations of syphilis. He was surprised at the wild statement of Dr. Bermann as to his powers of diagnosticating a disease surrounded by as many uncertainties as syphilis. He was surprised to hear a gentleman get up in a body of intelligent men and utter such an opinion. Dr. Thompson had visited the clinics of men with large experience in syphilitic diseases, and never heard one of them make such a rash statement. They are constantly changing their opinion. He had seen many cases in which they could not tell with certainty what the disease was due to, but suspected syphilis; but suspicions are not facts, and are not reliable in correct diagnosticating. If Dr. Bermann had not obtained the history in his cases he did not believe that he would have attempted to diagnosticate syphilis from such meagre manifestations. He had not proved that either of these patients had syphilis by one positive sign; until he did, then the diagnosis would be questionable. We all see ulcerations that resemble syphilitic ulcerations, but we would not make a diagnosis from these alone at such a remote period after primary infection.

DR. BUSEY was seeking information. It had been definitely stated by Dr. Thompson that syphilis would not remain latent for so many years. The question is, did either of these patients have syphilis? The point seems to be settled that if the man had syphilis it did not remain latent so long, and if the woman had it the infection was more recent than claimed by Dr. Bermann. Assuming that the latency was not as long as it was said to be, the diagnosis is not positive. He did not believe the woman could have contracted the disease through the pregnancy and not have manifestations for so long a time. He coincided with the view expressed by Dr. Thompson, that if the woman had syphilis she contracted it long after the time stated in the report.

DR. BERMANN was very glad to hear Drs. Thompson and Busey testify to the absolute necessity of making an exact diagnosis, and felt very much relieved, consequently, as that absolved him from having been too arrogant in taking a firm stand regarding the exactness of a diagnosis he had made in a case fully as important as that of extra-uterine pregnancy, and much easier to make. A fair and scientific criticism of the subject brought before this Society for discussion can only be welcome to all members; but such objections as those made by disputing without giving any reasons, the correct diagnosis of a case they have never seen, and which had been under his observation for a long time, he could not consider either fair or scientific.

Zeiss says: Repeated observations, however, have taught us that persons affected with latent, feeble syphilis, though having no syphilitic effects on any part of their bodies, may communicate the disease to their wives, although it is not possible to discover any initial syphilitic lesion in the latter, and have not become pregnant. In these women syphilis manifests itself by extremely rapid emaciation. In the further course of the disease they lose their hair; sometimes periosteal swellings come on in some of the bones, and subsequently the menses become profuse and recur frequently. On becoming pregnant they will often abort. In what manner the syphilitic contagion in such cases has gained an entrance into the system is not yet clearly known. We know just as little in what manner a woman who suffers from latent syphilis is capable of communicating the disease to her husband. Possibly in such cases the blood has served to transmit the infection, some bleeding erosions or excoriations having occurred on the genital organs.

Neumann, to whom Dr. Thompson refers, says: Though it is not possible to draw the line absolutely between secondary and tertiary symptoms, still experience teaches that some forms of syphilis show soon after infection, that means in more

acute fashion, while others appear only several years after infection. The tertiary symptoms begin not before seven or eight months have elapsed. Not infrequently it can be observed that the so-called tertiary symptoms develop after the lapse of several years, without any secondary symptoms having been observed.

In regard to Dr. Thompson's statement about the use of mercury and iodine in such cases, a well known author states:

"Mercury as a rub is advantageous in proportion to the nearness of the symptoms for which it is given to the primary lesion, while iodine is nearly a specific for the later manifestations. The intermediary symptoms require both medicines combined.

"Syphilis may manifest itself as a mild eruption after chancre, disappearing possibly without treatment, and then, exceptionally it is true, lie latent for many years, as long as 52 years, to reappear with characters due only to syphilitic disease."

Bumstead and Taylor say: "It has been proved that the semen is not an infecting fluid, as are syphilitic blood and the excretions of specific lesions; moreover, every physician with experience has met with many instances of syphilitic men cohabiting for years with healthy women who never show any evidence of syphilis.

"The physiological secretions of syphilitic persons, the milk, saliva, urine, perspiration and tears, most probably are not vehicles of syphilitic poison. They may probably contain it, but in such an exceedingly dilute state as to be innocuous. However, one of the physiological secretions, the semen, seems to form an exception to this rule.

"Whether the semen of a man affected with latent syphilis may be the medium of contagion to the wife remains yet an open question. Von Barensprung claims that this can be so only when the wife conceives. Others, as Porter and Langston Parker, have reported cases which tend to show that infection of the wife may take place without conception, solely through the direct action of the semen, and at the same time without the production on her part of any discoverable primary lesion. The difficulty experienced in ascertaining the real facts in such cases is materially increased from the fact that the primary lesion upon the internal genitals of the female is often very superficial, and lasts but a short time. H. Lee is of the opinion, however, that in these cases the semen does not cause the infection itself, but only through the admixture with it of syphilitic virus from the urethral mucous membrane.

"On the other hand, the virulence of the semen of a syphilitic father for a child he begets is an unquestionable fact."

The point that Dr. Smith made that people with syphilis will lie even to their physicians is unquestionably true, but in his case the man's word could be relied on, as he had every reason to know and there was no reason for him to conceal any facts after he had acknowledged to having been treated for syphilis. The wife, when she came to him, had tertiary manifestations, as is sufficiently proved by the specific effects which iodide of potassium had in her case. If she had contracted the disease illegitimately, she would have been more likely to have come under observation long before it had come to the manifestation of tertiary symptoms. Furthermore, experience teaches, as Fournier in his works on Syphilis and Marriage shows, that the rule is that the wife is infected by the husband, and his authority, he thought, would not be questioned.

DR. THOMPSON said his one idea in all discussions was to consider matters brought before this society simply from a scientific standpoint, in order that a thorough, satisfactory, and at the same time impersonal discussion might be possible. He believed that the other members of the society would agree with him in saying that the extracts read by Dr. Bermann were admirably adapted to support the views expressed by him, and rather weakened than strengthened those of Dr. Bermann. He thought that no competent authority of the present believed that a woman could acquire syphilis by the semen unless through the fœtus after impregnation. Fournier has inoculated with the semen of syphilitics without effect. The point which he would emphasize was that rather than believe that the patient had acquired syphilis from the semen of a syphilitic he would doubt Dr. Bermann's diagnosis. It is true that if an individual had a specific sore in the mouth the saliva which came in contact with it might infect another, and so could the semen passing over a sore in the urethra; but saliva and semen as such did not and could not infect. Further, while secondary syphilitic lesions were inoculable, tertiary were not.

In regard to the diagnosis of the primary lesion, if Dr. Bermann meant that some syphilitic sores were so characteristic that no one could possibly make a mistake, he agreed with him; but the true Hunterian chancre does not represent one-half the infecting sores. Sometimes these are so slight that the patient would not discover their existence, and this has repeatedly occurred, even in the person of physicians. Many slight erasions or abrasions may occur which are not the least characteristic, and which readily disappear upon simple treatment. But, nevertheless, it is possible for even these to infect with syphilis, or a person may become infected through them. There are no hard and fast lines to be drawn between the appearances of the chancre and chancroid—the infecting and non-infecting sore. Characteristic examples of each are met with, but again other

sores occur which it is impossible to refer definitely to either category simply from their naked-eye appearances. The woman in Dr. Bermann's case was exposed constantly throughout her married life to infection from her husband, but who could tell when it occurred? If syphilis were present inoculation must have occurred in this way; for supposing that even the sore in the man's mouth was a gumma, infection from it was not possible. Dr. Bermann had said that it was possible to differentiate in ulcers of the throat between specific and non-specific. This was always difficult. At the present time he had under observation, in an elderly maiden lady—where the existence of syphilis was out of the question—a leg ulcer which had all the appearances of being specific, but which was healing rapidly under the simplest general and local treatment.

DR. BUSEY expressed his surprise that Dr. Bermann should have believed that he had made an attack upon him.

DR. BERMANN had referred to Baumler's opinions in regard to the subject in hand which on being rehearsed seemed to support the stand taken by Dr. Thompson.

DR. BUSEY asked if Dr. Bermann now said that he did not know when the woman was infected with syphilis why he had presented the case as one of latent syphilis of long standing?

DR. BERMANN reiterated his belief that his case was one of infection by latent syphilis.

Stated Meeting, February 27, 1889.

DR. HAGNER IN THE CHAIR.

DR. D. S. LAMB presented

SPECIMEN OF TUBERCULAR PERITONITIS.

Uterus and appendages and left lung. Peritoneum covering uterus and appendages was everywhere studded with small flat tubercles about 2 lines in diameter. The lung was compressed so that there was no air in it. Specimens from a colored woman who had had fever, night-sweats, brown tongue, cough, brownish expectoration, emaciation; diarrhœa and constipation alternated; tympanites; severe abdominal pain, especially in epigastric, umbilical and right iliac regions. The post-mortem examination showed the peritoneum everywhere as in the specimen; the parenchyma of the organs, the mucous membrane of the intestines, and the lymphatics of the abdomen not affected. Right lung œdematous; left lung as described; was compressed by a large serous effusion in pleura; pleura of lung thickened. Abdominal organs adherent everywhere; some adhesions slight; others, especially in the right iliac region, old and firm. Liver small and fatty; spleen small. Kidneys normal. Brain and heart normal.

Also, a specimen of extra-uterine pregnancy. The mother, a colored woman, age 27, had been married one year when she began to show signs of pregnancy in October, 1888. After a time she had colicky pains, and towards January, 1889, had, at short intervals, some hæmorrhage per vaginam; a tumor also appeared in right iliolumbar region. In January the hæmorrhages were more profuse and frequent. She died suddenly February 20th. The post-mortem examination showed the right Fallopian tube converted into a large sac, with placental wall ruptured at one end, where a four-months' fœtus had escaped; left tube much distended with watery fluid; small corpus luteum in *left* ovary; some old adhesions around right tube and to omentum. Lungs normal; slight thickening on one aortic segment. Abdominal organs normal, except as mentioned. Abdomen full of blood-clots and serum.

DR. BUSEY was extremely interested in these cases, and in the extra-uterine pregnancy he was desirous to obtain a correct record of knowing if he had understood Dr. Lamb to say that the patient had had symptoms in the second, third, and again in the fourth month.

DR. LAMB remarked that there had been pain in each of the three months, and the discharge spoken of had occurred one month before death.

DR. BUSEY thought that the patient had not been examined carefully, and that in all probability operative interference at the right time might have saved her life. Referring to the case reported sometime since to the Washington Obstetrical and Gynecological Society, by Dr. Smith, he observed that the case had only been seen after death by Dr. Smith, but the symptoms seemed by him to have been sufficiently pronounced to have excited the suspicion of her attending physician. Here then were two specimens, presented within a short time of each other, removed post-mortem from patients who had died of a ruptured extra-fœtation sac, and in both cases it was fair to suppose that if the diagnosis had been made, and abdominal section performed, a fatal termination might have been averted.

DR. SMITH asked Dr. Busey if he had ever seen a case of ectopic pregnancy. He reviewed the history of the case alluded to by Dr. Busey, which had previously been reported by him. The patient was pregnant three months, but there had been no symptom pointing distinctly to the existence of an extra-uterine fœtation before those presented themselves which immediately preceded and accompanied the fatal issue. Four days before her death the patient sent for Dr. Smith, and she then complained of intense abdominal pain, most marked in the epigastric region. The temperature and pulse were normal but there was some vomiting. The next day the symptoms were the same, but were somewhat mitigated by the treat-

ment pursued. On the evening of the fourth day he saw her again and left her comfortable. There was no pain or tenderness in or over the abdomen, nor any symptoms of hæmorrhage or shock. At his next visit he found the woman dead. Throughout the whole history of the case there was nothing to indicate the existence of an anomalous pregnancy. The only thing which produced disturbance was some frequency and painfulness in micturition. At midnight, a few hours after Dr. Smith's visit, she awoke her sister—who was sleeping with her—and told her she was dying. She was anxious to have her feet elevated. Dr. Holden, who lives in the neighborhood, was hastily summoned, and reached her about half-past one. He gave her stimulants hypodermatically, but without avail, as she soon died.

Dr. Smith, continuing, said that Dr. Busey was of the opinion that the diagnosis should have been made in this case, and in that reported by Dr. Lamb, but the inherent difficulties of the diagnosis in this condition should not be forgotten. At a recent society meeting in Philadelphia Dr. Parvin had said that, after all, the diagnosis in such cases of ectopic pregnancy was a happy guess. Many others, whose names are familiar to us as active and intelligent gynecologists, had participated in this discussion, but the general consensus of opinion was that the whole question of diagnosis was beset with the utmost difficulties. Indeed, even after operation, it is not always easy to decide that an ectopic pregnancy really existed; and in one case, to which attention was called, in New York, the specimen had first to be submitted to a microscopist before this decision could be arrived at.

So far as the history of ectopic pregnancy in this city was concerned, there were eight or ten specimens in the Army Medical Museum, all of which had been removed after death.

In any woman where the menses have ceased and the uterus on examination proves to be enlarged, the inference is that normal pregnancy exists. In his own case the uterus was of the size to correspond with the existing term of utero-gestation. This being ascertained, there having been nothing to point to the existence of anything abnormal, the examination was concluded.

The symptoms of ectopic pregnancy are really those of pregnancy plus abortion; and if an examination is made and no abortion is found to be taking place then the suspicion of extra-uterine pregnancy is at once excited. Suppose, under these conditions, a tumor is found at the side or behind the uterus, are we justified in performing abdominal section and removing it? Dr. Smith thought that we were, and would go farther and say that anything less than such a procedure was an injustice to the patient. It would be more excusable to fail to make a diagnosis than having made it fail to remove the abnormally-seated product of conception.

DR. BUSEY remarked that, having trusted to his memory when first speaking of Dr. Smith's case, he had made an error in believing that Dr. Smith did not see his patient until the time immediately preceding or coincident with the fatal termination. It now transpires that he saw her four days before this and, without desiring to cast any blame upon Dr. Smith, he thought most assuredly the diagnosis should have been made. Even although he could not have made the diagnosis completely and accurately he should have discovered the tumor. He differs again with Dr. Smith as to the unvarying employment of laparotomy even if the diagnosis is assured, for even as great an authority as Thomas conceives laparotomy to be the last, not the first resort. He believed that laparotomy may be but is not invariably best. Yet, in either of these cases laparotomy would not only have been justified, but was imperative, when symptoms of impending dissolution appeared. At the time of rupture abdominal section was imperative, but not always before this.

DR. SMITH asked Dr. Busey if not laparotomy, then what other method of treatment was indicated before rupture?

DR. BUSEY: Electricity is the alternative.

DR. J. FORD THOMPSON referred to the importance of the subject under discussion and urged its exhaustive study and thorough elaboration. His own opinions were not in perfect consonance with those of Dr. Smith or those of Dr. Busey. He thought that in the vast majority of cases of ectopic pregnancy the diagnosis ought to be made. When the surgeon is called upon to decide the nature of an abdominal or pelvic tumor coexisting with pregnancy, and in connection with the symptoms which have already been alluded to, he must confess that there is little ground for confusion. He was anxious that not too much weight be placed upon the opinion of accepted authorities, for upon these matters any one of surgical experience is entitled to entertain and express his individual opinion.

He was in accord with Dr. Busey as to the limits he puts upon abdominal section. Tait has reported forty-two cases of abdominal section for ruptured ectopic fœtal sacs with but two deaths; and if such a result can be achieved at such a time, and under such unfavorable conditions of shock, etc., why not earlier? If early laparotomy is not performed the surgeon may never have the opportunity of operating at the time of rupture, for death may ensue before he reaches her bedside. It is the bounden duty of the surgeon to first make his diagnosis and then perform laparotomy. He regarded the sound as a valuable aid in diagnosis, although its use was deprecated by some. He considered electricity, or any other means of killing the fœtus, as inferior to laparotomy. Such a procedure does not save the woman; even though it averts immediate danger many accidents may sub-

sequently ensue, such as breaking down of the sac, and all the evils attending and following this process.

Laparotomy is best performed early, for then the operation is easy, no adhesions or other complications existing. He expressed himself as opposed to any method of killing the fœtus provided it was allowed to remain within the abdominal cavity.

Dr. G. W. Johnston observed that it gave him great pleasure to listen to the preceding discussion of the subject of ectopic pregnancy, and he was glad that a matter so important was called so forcibly to the attention of the Society as had been done by the presentation of the specimen from one fatal case, and the narration of the history of another. Tait's views as to the nature and mode of origin of ectopic pregnancy were well known and needed no comment; and Dr. Lamb's specimen, in which there was tubal gestation on one side and grave disease on the other, would aid in the support of Tait's opinion as to the etiology of the condition. Dr. Johnston hoped that the tube which was diseased would be submitted to careful microscopic examination in order to ascertain the character of its lining mucous membrane, particularly with reference to the absence or presence of cilia upon its epithelial investment.

So far as the difficulty of the diagnosis before rupture was concerned, he believed that this was universally acknowledged, and while we all agreed that a diagnosis should be made it was not always easy to make it. The classical symptoms of this condition at this time were quite distinctive, but from a study of those cases where the diagnosis previously attempted or made had been confirmed by abdominal section during life or autopsy, he was convinced that many of the distinctive symptoms might be wanting although, in a certain proportion, so characteristic was the picture presented that it was hardly possible to see how one could have gone astray. While it appears, therefore, that in some cases of extra-uterine fœtation, before rupture, many significant features of the affection may be absent, so that we are, as Tait puts it, rather confused than enlightened by the history of the case; on the other hand it is equally worthy of remark that certain other affections of the pelvic contents may be accompanied by symptoms, both subjective and objective, so like those which are said to accompany extra-uterine fœtation that it is with surprise, on opening the abdomen, that the operator finds that it is not with an ectopic pregnancy, but with something entirely different, that he has to do.

In spite of the manifest difficulties which surround this subject we will all agree that nothing exceeds or, perhaps, even equals it in importance. It is a subject which is of the most vital importance, not only to the specialist, but the general practitioner, and its importance has been immeasurably enhanced by the wonderful record of Tait's operations at the time of rupture, which are set forth in his work on "Ectopic Pregnancy," recently published.

America has just cause to be proud, however, not only for the work which her physicians have done in the development of electricity in the treatment of this condition, but more especially because two of its members have proven conclusively, by three cases, that the diagnosis could be made and the sac and its contents be successfully removed before rupture had taken place. To Dr. Joseph Price, of Philadelphia, who reported the first case, and to Dr. J. S. Hawley, of New York, who operated upon the others, too much credit cannot be given for this solution of a very difficult problem.

It would appear from the remarks just made in discussion that the use of electricity was attended by no danger. That this was not the invariable rule Dr. Janvrin's case (heretofore reported) proved very conclusively.

Dr. Smith desired to make some further remarks in regard to his own case. The day before his patient had been seized with the illness which proved to be her last, she had been actively engaged in washing clothes and hanging them on the line. She had, at the conclusion of this work, gone out to a neighboring store to make some needful purchases, and on her return attempted to castigate one of her children, a large boy. It is likely, therefore, that the rupture of the sac was immediately the consequence of her own indiscretion. He had previously treated this patient for retroversion of the uterus, and when he had first been called after her sudden attack he supposed that the gravid uterus, which he previously replaced, had again become dislocated. Examination showed the uterus to be occupying its normal position, and he presumed that it had fallen backward, but had subsequently spontaneously assumed its normal position.

Beside this there was a fibroid in the uterus, and the discovery of this body in the womb of a woman with signs of pregnancy served still further to complicate the diagnosis. He was thoroughly in accord with Greig Smith, who regarded laparotomy as imperative as soon as the diagnosis was made. He was opposed to the use of electricity, as after the fœtus had been killed the woman was by no means free from danger. He referred to a case in which Dr. Mann, of Buffalo, had supposed that he had killed an ectopic fœtus by electricity, while Dr. Kelly, of Philadelphia, who subsequently operated upon the patient, proved the supposed ectopic gestation sac to be an ovarian tumor. He quoted Dr. Formad, of Philadelphia, as saying that the majority of cases of extra-uterine pregnancy were diagnosticated by the coroner. He referred also, in speaking of

the use of electricity, to the opinion of Reeve, expressed in the words: "One should never employ electricity in this condition unless his laparotomy instruments were at hand."

DR. FORD THOHPSON observed, in speaking of the usefulness of the sound for purposes of diagnosis, that when all other means of diagnosis had been exhausted, and the symptoms pointed to the existence of ectopic pregnancy, the introduction of the sound was perfectly justifiable, and in Dr. Smith's case this procedure might have led to the making of a correct diagnosis, and the saving of the patient's life.

DR. BUSEY asked if Dr. A. W. Johnstone, of Kentucky, had not been the first to remove an ectopic fœtation sac before rupture?

DR. G. W. JOHNSTON replied that Dr. Joseph Price was the first to put such a case on record. The history of his case was very brief, and perhaps might be called incomplete. The second and third operations had been performed, as had been said, by Dr. Hawley, of New York, and the description given left nothing to be desired. Dr. Price's case appeared in the *Annals of Gynecology* and Dr. Hawley's in the *N. Y. Medical Journal.*

DR. BUSEY was convinced that in every case of ectopic pregnancy the diagnosis should be made. Heretofore, in speaking of ectopic pregnancy, he had had in mind only the tubal variety. To make his views upon treatment clear he would say that: 1. When rupture has occurred laparatomy is the sole and imperative operation; and 2. When an assured diagnosis has been arrived at previous to rupture, laparotomy is again the operation of election; but in that large group of cases where the existence of ectopic pregnancy is probable, but where an accurate diagnosis is impossible, electricity is preferable to laparotomy. While it is true that bad results have attended and followed its application in some instances, this was by no means most frequently the case; and the vast majority of instances nothing untoward had occurred, and success had followed its application.

DR. LAMB said that in his case a *corpus luteum* was noticed in the left ovary, while the pregnancy was in the right tube. He asked if any explanation could be offered for this state of things?

DR. G. W. JOHNSTON remarked that the introduction of a sound into the uterus for diagnostic purposes was by no means devoid of risk; the contraction of the uterus, and of the fœtal sac, might thereby be induced, and fatal rupture was known to have occurred. In reply to a question of Dr. Thompson's, he said that he was not prepared to state definitely where he had seen such an assertion, but would endeavor to give him the desired information.

DR. S. S. ADAMS reported a case of

FRACTURE OF SKULL AND LACERATION OF BRAIN.

B. F. C., white, N.Y., consulted me in August, 1887, for epilepsy, inherited from father. Full habit and addicted to use of alcoholic liquors. A seizure preceding night. Two or three slight paroxysms since. Feb. 22, 1889, was thrown from a carriage and sustained a number of contusions. Was confined to house till Feb. 26th, then returned to work in land office; at noon, while ascending inside stairs on north front, he fell backward. Was attended by Drs. Darby and Littleford. Dr. J. Ford Thompson called at once, and sewed scalp wound on right frontal eminence. I met Dr. T. at 5 P.M., when he made an exploratory incision on the right temporal region. Fracture detected, but no depression. Prognosis: Death would take place in a few hours, as it was believed that the brain had been lacerated. Active convulsions from time of accident till 7 P.M., after that profound coma until death, at midnight, 26th.

Necroscopy, by Dr. D. S. Lamb, twelve hours after death, limited to the head: There was a large swelling in the right temporal region, due to hæmorrhage into and under the scalp. In this swollen part an angular incision had been made above and in front of the line of the ear. On the right side of the forehead was a lacerated wound of the skin corresponding to the frontal eminence, beneath which the bone was normal.

The right parietal bone was fissured longitudinally, the fissure crossed the coronal suture at the right temporal ridge and took an angular course to the left for a short distance over the frontal bone; posteriorly the fissure approached the occipital apex within 2 inches, and bifurcated into two branches, one extending downwards to the occipito-parietal suture, the other to the left, across the median line and a short distance beyond.

The brain was covered with dark blood-clots everywhere; there was a longitudinal laceration involving the lower part of the frontal and parietal lobes, and communicating with the surface in line of the lower end of the fissure of Rolando. The fractured bone showed many extravasations in the diploe.

FOREIGN CORRESPONDENCE.

LETTER FROM LONDON.

(FROM OUR OWN CORRESPONDENT.)

London Hospitals and their Management—The Metropolitan Water Companies' Filter Beds—Spirone in the Treatment of Consumption—The use of Poison for Criminal Purposes in India—The Death-rate of London—Miscellaneous Topics.

The Government has pledged itself to take into consideration the whole question of the London hospitals and their management. Lord Sandhurst

in a speech showed that ample room exists for searching inquiry. It is undoubtedly the case that the multiplication of "special" hospitals during recent years has seriously diminished the incomes of the older institutions. This is a grave matter in itself, but it becomes graver still if it be true that the "special" hospitals are prone to extravagance. Sir Andrew Clarke's fancy sketch of the "Hospital for the Treatment of the Diseases of the Great Toe" has a good deal of truth at the back of its irony. It is not easy to see what the Government can do to stop this state of things, but even the knowledge that it hopes to do something may produce a beneficial effect for a time.

Major General Scott, the official water examiner, in his forthcoming report gives a favorable account of the condition and working of the Metropolitan Water Companies' filter beds. A normal limit to the rapidity of filtration has now been adopted, being at the rate of 2½ gallons through each square foot of the filtering surface, which consists of layers of sand and fine and coarse gravel. The local companies' filtration during last year appears to have been well within this limit. Sand is the efficient medium. Turbid water, however, after floods is difficult to deal with. The solid impurities in suspension chiefly consisting of clay, marl, and chalk in very finely divided state, can be got rid of only by long subsidence previous to filtration. Turbid water must of necessity be sometimes admitted, and filters are then overtaxed. Great stress is laid in the report upon the necessity of having cisterns properly covered so as to exclude both light and dirt, and they should be so placed that the water may be kept cool in summer without being in danger of freezing in the winter.

Spirone is the name given to a fluid which is claimed to be of great use in the treatment of consumption and a variety of pulmonary affections. It is also stated to be very efficacious in coryza. The quantity used is ½ oz. during the twenty-four hours, and this is best taken by inhaling about one-fourth of the total quantity for the twenty-four hours, as soon as the patient awakes or immediately after getting up. Another fourth should be taken before going to bed, and the remaining half should be used at intervals in driblets during the day, especially if at any time there be a feeling of dryness, itching or tingling. The spray should be applied by blowing it somewhat vigorously against the back of the throat, making the jet strike successively the different parts of that region, the patient drawing it into the lungs at the same time. Two whiffs in succession should be given up each nostril, the head being thrown well back, and kept in that position, so that the spirone can trickle down the back of the throat. The first whiff is often very painful, especially for the first few days; the second is less so—the sensitiveness diminishing rapidly as the condition of the mucous membrane improves. If two inhalations up each nostril are sufficient to produce entire relief they had better not be repeated during the day. If, however, at any time the nostrils, back of the nose or throat again appear irritated or uncomfortable, the application may be repeated. It is found, however, well not to use it for the nostrils more than four times altogether during the twenty-four hours, and the spray must not be delivered too forcibly, as in hay fever the mucous membrane of the nostril may easily be made to bleed, owing to its state of irritability and congestion. In hay fever the treatment should begin a few days before the expected attack. Even if the remission of the symptoms is complete, the treatment must not be left off, or even decreased for a week or ten days after the expiration of the period during which the disease generally lasts.

Some interesting reports are to hand relative to the employment of poison in India for criminal and other purposes during the year 1888. It would seem that the total number of such cases dealt with in the Government of Bombay for the twelve months was 360, while there were only 282 the preceding year. This enormous increase is accounted for partly from the fact that the use of poison for criminal purposes is becoming increasingly frequent each year. Vegetable poisons, which were most extensively used a few years ago, have been rapidly giving place to metallic poisons. This is ascribed by Dr. Lyon, the analyst to the Government, to the ease with which drugs such as arsenic are procurable at the present time, there being practically no restriction on their sale. Out of eighty-four undeniable cases of human poisoning, arsenic was employed in forty-one, copper in six, mercury in five, powdered glass in three, and red lead in three, while of the remaining twenty-seven cases opium appears to have been used in fifteen, datura in five, alcohol in two, prussic acid in one, and oleander and other plants in four. According to Dr. Lyon poisoning by means of powdered glass is, comparatively speaking, quite a recent innovation, and hence the number of cases which had come under his notice was smaller, probably, than it otherwise would have been. The return points irresistibly to the conclusion that deaths from criminal administration of metallic poison are not only common, but are in fact of increasing frequency in India at the present day.

Among the large towns of the United Kingdom, London during the past month, with a death-rate of 18.6, holds an honorable place in the latest returns of the public health. It is far behind Huddersfield, which reports only 10.7, and Derby, 12.2; but these are both very exceptional returns. Next in order comes Brighton, 14.6, and Bristol, 16.4. Absolutely the most unhealthy large town is Preston, with a death-rate

of 48.6. In the metropolis the most serious zymotic disease at present is diphtheria, from which there were forty-four deaths. Scarlet fever is prevalent, but the epidemic is of a mild form.

Dr. Norman Kerr, who was first drawn to the study of inebriety as a disease while working as a temperance reformer, points out that certain periods of life are accompanied by a special craving for stimulants, which disappears along with the physiological circumstances that caused the disturbance of the system. The habit of drunkenness, he asserts, may also result from some accident—may, indeed, be a symptom of some obscure brain disease.

Aix-les-Bains is grateful to British medical men for their appreciation of its mineral waters, and the municipality has recently determined to honor the profession in the person of a distinguished London physician, by giving to a new avenue the name of Sir Alfred Garrod.

In view of the excessive prevalence of infant mortality a select committee has recommended that the Friendly Societies Act should be so altered that the age for the insurance of juveniles be extended from 10 to 16 years, but that the total amount of insurance be absolutely limited, and for the security of infantile life suggests that the Registrar-General should add to the form of medical certificate of death a column demanding particulars of insurance on the life of deceased, to be filled up by the doctor in attendance on the family.

MISCELLANY.

AMERICAN ACADEMY OF MEDICINE.—The Annual Meeting of the Academy, for 1889, will be held at Chicago, Ill., November 13th and 14th, being postponed to that date by authority of the Council.

RICHARD J. DUNGLISON, Secretary.

Philadelphia, Sept. 1, 1889.

LETTERS RECEIVED.

Dr. S. O. Bowen, Eastford, Conn.; B. Westermann & Co., New York; Dr. Jno. G. Ames, Marblehead, Mass.; Dr. W. H. Ashley, Shelburne Falls, Mass.; Dr. J. A. Hinton, Friendship, Tenn.; Shelby Morgan, Shelby, Ind.; Dr. John S. Marshall, Green Spring, O.; Dr. Samuel A. Fisk, Denver, Col.; Dr. John B. Hamilton, Surgeon-General U. S. M. H., Washington; Dr. Herbert H. Judd, Galesburg, Ill.; Dr. J. G. Carpenter, Stanford, Ky.; Dr. H. R. Storer, Newport, R. I.; Dr. J. B. Lawrence, New York; E. J. Hirsh, Ann Arbor, Mich.; Dr. Hubert S. Johnson, Lowell, Mass.; Dr. C. S. Pixley, Elkhart, Ind.; Dr. Wm. C. Bane, Cannonsburg, Pa.; Dr. D. Mason, Spokane Falls, Wash. Ter.; Dr. F. Terrier, Paris, France, Surgeon-Major Chas. D. Greenleaf, Washington; Dr. Mary Green, Charlotte, Mich.; Dr. C. T. Kemmurer, Eldridge, Ia.; E. Steiger & Co., New York; Hon. W. P. Sheffield, Newport, R. I.; National Surgical Institute; Indianapolis, Ind.; Dr. Wm. Perrin Nicholson, Atlanta, Ga.; W. M. Thayer & Co., Chicago; Geo. S. Davis, Detroit, Mich.; Dr. J. G. Carpenter, Stanford, Ky.; Dodd's Advertising Agency, Boston, Mass.; Dr. T. A. Marchand, Cincinnati, O.; Dr. A. N. Bell, Brooklyn, N. Y.; W. P. Cleary, New York; Medical College of Ohio, Cincinnati, O.; Dr. P. O. Hooper, Little Rock, Ark.; Dr. S. Solis-Cohen, Philadelphia, Pa.; J. H. Bates, New York; Longmans, Green & Co., New York; Fred. D. Van Horen, New York; Dr. W. E. Casselberry, Chicago; Dr. C. O. Cooley, Madelia, Minn.; Dr. G. B. Dunmire, Philadelphia.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from August 31, 1889, to September 6, 1889.

By direction of the Secretary of War, a board of medical officers, to consist of Col. Edward P. Vollum, Surgeon; Major Henry McElderry, Surgeon; Major Washington Matthews, Surgeon; Capt. James C. Merrill, Asst. Surgeon, is constituted to meet in New York City on the 1st day of October, 1889, or as soon thereafter as practicable, for the examination of Asst. Surgeons for promotion and of candidates for admission into the medical corps of the Army. The board will be governed in its proceedings by such instructions as it may receive from the Surgeon-General. Par. 1, S. O. 203, A. G. O., September 2, 1889.

Major P. J. A. Cleary, Surgeon U. S. Army, is hereby granted leave of absence for two months on surgeon's certificate of disability. S. O. 59, Hdqrs. Div. of the Pacific, San Francisco, Cal., August 27, 1889.

Capt. Joseph Y. Porter, Asst. Surgeon, resignation has been accepted by the President, to take effect August 29, 1889. Par. 11, S. O. 200, Hdqrs. of the Army, A. G. O., August 29, 1889.

Capt. Charles B. Ewing, Asst. Surgeon, granted leave of absence for twenty-one days, to commence on or about September 21, 1889, provided that at that time the post surgeon, now on leave, has returned to duty. Par. 5, S. O. 201, Hdqrs. Div. of the Atlantic, Governor's Island, N. Y., September 4, 1889.

First Lieut. W. B. Banister, Asst. Surgeon, granted leave of absence for fifteen days. Par. 2, S. O. 82, Hdqrs. Dept. of Ariz., Los Angeles, Cal., August 23, 1889.

The garrisons of Ft. Laramie, W. T., Ft. Hays, Kan., and Ft. Lyon, Col., will be withdrawn and the posts named will be abandoned as soon as it can be done with due regard to economy. By G. O. 69, A. G. O., August 31, 1889.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending September 7, 1889.

P. A. Surgeon F. S. Nash, detached from the "Dale" and ordered to duty in the Bureau of Medicine and Surgery.

P. A. Surgeon A. C. H. Russell, ordered to naval hospital, Yokohama, per steamer of September 28.

P. A. Surgeon C. H. H. Hall, detached from naval hospital, Yokohama, on reporting of relief, and return home.

Asst Surgeon S. S. White, detached from naval hospital, New York, and ordered to the "Minnesota."

Asst. Surgeon E. P. Stone, detached from the "Minnesota," and wait orders.

Asst. Surgeon P. H. Bryant, detached from the "Ajax," and ordered to naval hospital, Norfolk, Va.

Asst. Surgeon A. R. Wentworth, detached from naval hospital, Norfolk, Va., and wait orders.

CORRIGENDUM.

In the address of the Hon. Wm. P. Sheffield, appearing in THE JOURNAL of August 24, the closing sentence of the third paragraph, second column, page 253, should read: "He came while the court was in session, and after the *trial and* sentence of Mrs. Hutchinson"